The Builder

INCORPORATING ARCHITECTURE & THE BRITISH ARCHITECT

Vol. CC. March 17th 1961 No. 6148

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UNIVERSITY OF ILLINOIS

Published from 'The Builder' House, 4 Catherine-street, Aldwych, London, WC2. Telephones: Temple Bar 6251-4.

Annual subscription rate: £4. Special rate for Students following an approved architectural or technical course: 30s. Single copies (including back numbers, where available, up to 12 months old) 1s. 6d. (post paid 2s.). Indices free on application.

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Leading Articles

The Future of London

SOME MONTHS HAVE ELAPSED since the Royal Commission presented their report on the future organisation of local government in Greater London. Although time must obviously be allowed for public discussion of the revolutionary changes proposed in the report, the Government ought not to delay longer than is necessary in announcing definite conclusions and in introducing the necessary legislation. A prolonged period of uncertainty is not likely to do any good; it may do real harm if (as the RIBA fear in a statement published last week and summarised in this issue) it results in the dispersal of staff and a consequent run-down in the machinery for architecture and town planning on which the future development of Greater London depends.

The RIBA statement is a valuable document worthy of careful study in Whitehall. Fortunately, the Institute and the Royal Commission agree on many points, particularly that the future government of London should consist of an elected Greater London Council and a number of Greater London boroughs—the latter to be the primary units of local government and to perform all functions except those which can only be effectively performed over the wide area of Greater London. The RIBA are thus able to make suggestions for improving a scheme with which they are in basic agreement rather than (as some bodies will no doubt attempt) to modify something they dislike.

Both Commission and Institute are concerned with the problems of urban renewal and overspill. The Commission consider that there must be massive overspill of population and employment beyond the green belt and consider it should be the responsibility of the Council for Greater London to deal with this overspill problem. The RIBA question the need for so much overspill; they consider that the Council should re-assess the volume of overspill on the assumption that permitted densities are raised to acceptable levels and reasonable standards of open space achieved. 'Acceptance of present permitted densities would spread the built-up area far and wide beyond the green belt. The major housing effort of the Council should not be a massive overspill beyond the green belt but redevelopment within the review area, consisting of major urban renewal schemes beyond the resources of most boroughs.'

Certainly, it should be one of the first tasks of the Council to consider what densities are likely to be acceptable in the London of the future. It is by no means clear, however, that densities can or should be increased to such a level as would significantly reduce the volume of overspill. The Commission were obviously guided by the 'insatiable demand' by the people of London for more space within and around the house—a demand which they regarded as natural and healthy and something to be encouraged in the interests of public health—physical,

moral and mental. The Council (and the Minister as the confirming authority for the development plan which it is contemplated the Council would prepare as local planning authority) would need to be satisfied that these human needs could be satisfied within the framework of higher densities. And, in so far as higher densities mean high blocks of flats, it will be necessary to consider whether these can be built and let without a large volume of public subsidies.

Nevertheless, whether or not there is a massive overspill programme, it is quite clear that there must be a vigorous effort at urban renewal. Whilst stressing the need for urban renewal, the Commission were somewhat vague as to machinery. It proposes that the Council should have powers, but apparently only housing powers, for carrying out redevelopment schemes extending over more than one borough or too large for the resources of a single borough; the Council would also be responsible for major highway schemes.

But urban renewal cannot be considered solely in terms of housing and highways. It will involve pressing on with the existing comprehensive development schemes and the designation of new ones. The designation of areas of comprehensive development is an integral part of the development plan—which is to be the responsibility of the Council—but it is equally important to decide on the means of carrying out such redevelopment. The RIBA would allow boroughs to redevelop those areas that are within their resources and lie within their boundaries, but point out that the Council must be responsible for major schemes. This plainly is right. Indeed, we would go further and say that, apart from the question of resources, some actual and possible redevelopment areas—such as the Elephant and Castle and Piccadilly Circus—are so much part of the London scene that they ought to be dealt with by the Council on behalf of Greater London as a whole. It is to be hoped that, in deciding upon the division of functions between the Council and the Boroughs, the Government will carefully consider what the RIBA have to say on this point, including the need within the organisation to be set up by the Council of an urban renewal section with specialised knowledge and experience.

The RIBA also have some important things to say about highways. They are surely right in emphasising that the Council must have proper authority in this sphere, and to allow the Ministry of Transport to define trunk roads could destroy overall planning; if anyone doubts this, he has only to read the Commission's observations on the futility of highway planning to date. Also of importance is what the Institute have to say about the handling of planning applications under the new regime, and the status of organisation of architects' departments in the Boroughs.

The RIBA Collection of Drawings

TO ACCOMPANY a selection of drawings from the RIBA on an exhibition tour a 'little picture book,' as it is modestly described, has just been published.* In a foreword to this, MR. JAMES C. PALMES, the RIBA librarian, gives a brief but interesting account of the drawings collection of the RIBA. He points out that although this dates from the foundation of the Institute in 1834, it is only in recent years that it has emerged from a rather haphazard accumulation of original documents into a fully organised major collection, and he gives the credit for this achievement to 'a decade of devoted endeavour by the library committee, among whom MR. S. ROWLAND PIERCE, FRIBA, and MR. A. S. G. BUTLER, FRIBA, have played a particularly constructive part, and of the industry, flair and enthusiasm of two members of the staff, MRS. PRUNELLA FRASER and MR. JOHN HARRIS.'

As a record of English architectural draughtsmanship from the sixteenth century to the present day the collection, Mr. Palmes says, is almost certainly unique, though there are still a few periods 'which are not as well represented as we could wish.' For example, there are some rather wide gaps in the eighteenth-century holdings which are now not easy to fill and there are far too few good drawings by living architects. The nineteenth century is comprehensively covered, but the greatest riches of the library are undoubtedly the Burlington-Devonshire collection of architectural drawings, deposited in 1894 by the 8th Duke of Devonshire, comprising some three hundred designs by ANDREA PALLADIO and his studio assistants, as well as a very large number by INIGO JONES and JOHN WEBB. 'These,' says Mr. Palmes, 'constitute one of the primary reference sources of architectural history and, with the Smithson Collection (acquired in 1927), provide an incomparable survey of the evolution of the English Renaissance.' The Collection contains also many fine examples of Continental work, notably the French and Italian eighteenth-century drawings presented by SIR JOHN DRUMMOND-STEWART in 1835, together with some delightful examples of draughtsmanship by French recipients of the Royal Gold Medal, presented in 1958 by the Academy of Architecture in Paris.

It would be a mistake to regard the Collection as nothing more than a reference store of information for students of architectural style and draughtsmanship, for it can be extremely useful at times in the everyday run of architectural practice. For instance, an architect of our acquaintance, recently commissioned to convert a large mid-Victorian mansion to institutional purposes, rather ruefully contemplating a formidable job of measuring up and recording, suddenly thought of the RIBA Collection and there, to his great satisfaction, he found a complete set of the original working drawings, which he was allowed to borrow.

The booklet contains 54 excellent half-tone reproductions of drawings by distinguished British and Continental architects, artists and draughtsmen, ranging from the early sixteenth century to recent times. Within its compass it is an admirably varied and representative selection. including not only geometrical and rendered drawings but landscapes, perspectives and decorative detail. There is a brief note on each drawing, giving its size, the medium used and a few biographical facts about the artist.

If a further edition of this excellent booklet should be produced one or two of the notes could be revised with advantage. For instance, it could be made clear that the reference to MATTHEW BRETTINGHAM is to BRETTINGHAM JUNIOR who, in addition to his work at Charlton House. Wilts., probably helped his father in the design of Cumberland House, Pall Mall. Some attention might be given also to the note on ALFRED STEVENS, which states that his abilities 'can best be judged from his drawings.' Many would prefer to judge them from the Wellington Memorial in St. Paul's Cathedral.

* Architectural Drawings from the Collection of the Royal Institute of British Architects. London: Alec Tiranti, Ltd. Price 5s.

Notes of the Week

Mahomet Goes to Leeds ; Chester Central Redevelopment ; IUA Congress; Landseer's Unfamiliar Art ; From the Caves of the Dordogne

IN A YEAR when, due to the IUA congress, there will be no British Architects' Conference at which the profession can meet to discuss their domestic problems, it is particularly proper that the first of the regional meetings to be organised by the RIBA should be held in the North of England. A series of regional meetings, it will be remembered, was one of the proposals approved by the council last December with the aim of improving the liaison between headquarters and members in the provinces.

The meeting, in Leeds on May 27, will give northern members the chance to discuss current issues with the President and honorary officers of the Institute. Several of the Chairmen of principal committees will be present, though a preliminary list of these as issued does not contain the name of the chairman of the Board of Architectural Education. Beginning at 2 p.m. there will be a 3-hour session, followed by tea and, at 6 p.m., a lecture by Mr. Percy Johnson-Marshall on 'America Today: a Review of Planning and Architecture.' Both at tea and at dinner following the paper there will be opportunity for members to speak informally with the honorary officers and with the RIBA staff present.

* * *

THIS IS AN EXCELLENT MOVE, and should help to remove the idea fast fixed in the minds of many provincial architects that the RIBA is only a London club. The real problem, of course, is difficulty of access but even at annual general meetings the out-of-London members are conspicuously absent. The President's emulation of Mahomet therefore is a matter for congratulation; it should do much to promote good understanding.

Chester Central Redevelopment

WHEN CHESTER CITY COUNCIL in October last invited developers to submit schemes for the redevelopment of an area of about 25,000 sq. yards adjoining the town hall, it took the wise and courageous step of informing developers that great importance would be attached to architectural design, both in relation to the development itself and to its site in the city. To secure this end, the council appointed Mr. G. Grenfell Baines, OBE, FRIBA, as architectural and planning consultant, and with him Mr. C. D. Pilcher, FRICS, as consultant surveyor.

Their reports, recently submitted, make most interesting and heartening reading —interesting because of their lively nature and heartening in that both consultants chose from the 24 schemes submitted one which, in their view, would add to the architectural values of the city while not necessarily affording the city the highest ground rent. This scheme (put in by Mr. Ian Hart, whose architects are Messrs. Michael Lyell Associates, of London) offers the council less than half the annual ground rent proposed by the highest bidder, but the city council, with a proper sense of its responsibilities to Chester, has nevertheless accepted the design with the lower offer because ' it clearly echoes all that is good in the city now—all that justly makes it famous ' (Mr. Grenfell Baines) and ' the development produces a good balance of user between the market, shopping, office accommodation, entertainment, restaurant, hotel and car-parking . . . the scheme seems to me to match the needs of Chester and to swamp nothing ' (Mr. Pilcher).

* * *

MR. GRENFELL BAINES, with typical efficiency, contributes in an introduction to his report a general note on the principles and methods of architectural assessment which may well be taken as standard guidance by every municipality contemplating central developments. We hope to refer to this again, meanwhile congratulating the promoting Chester city council both on its enlightened approach and on the result that has attended it.

IUA Congress News

AT PRESENT rate of progress, the IUA Congress may well be over-subscribed. At February 13, 879 members had been registered, including representatives of 47 countries. The USSR are sending 27 delegates, USA 49, Egypt 1, Spain 40, Mexico 31 and the UK 416. Twenty-five countries have submitted contributions to the International Exhibition. Apart from this, an exhibition of Soviet building materials and techniques will be included in the Soviet Trade Fair, to be held at Earl's Court from July 7-29.

Secretaries to the three working groups have been appointed—Mr. S. Meyrick (Architect to the University Grants Committee), Mr. J. M. Austin-Smith, FRIBA, AADipl, and Mr. George Atkinson, ARIBA (Building Research Station)—a strong team.

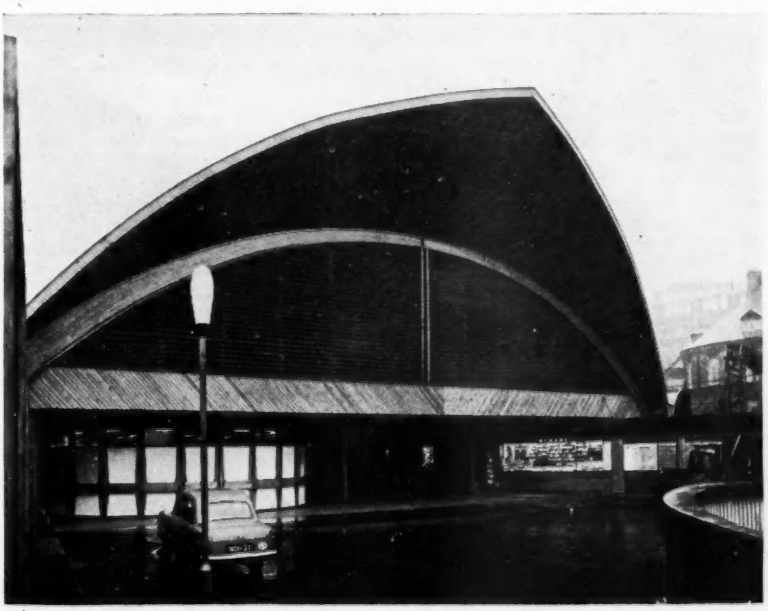
* * *

THE SOCIAL SIDE of the Congress is off to a good start. Architectural Association members are planning to entertain visiting members of the Congress in their homes on Monday, July 3, the opening day. So far more than 1,100 offers of private hospitality have been received from London architects. Guides and interpreters have volunteered in force, and no further offers for interpreting French or German are needed, though those able to speak Russian or Spanish will be welcome. They should apply to the Secretary of the Congress Committee, 66 Portland-place, W1. Meanwhile, work on Mr. Crosby's exhibition buildings on the South Bank is to begin on April 1, and the Press preview is already fixed for June 29.

Landseer's Unfamiliar Art

THE APPARENTLY RANDOM arrangement of pictures and catalogue entries in the Royal Academy's Landseer exhibition (the Diploma Gallery) tends to isolate the paintings from each other, and to give only a confused idea of Landseer's development as an artist (writes Susan

One of the timber conoid shells which cover the now-completed station concourse at Oxford-road, Manchester (illustrated in ' The Builder ' of June 10, 1960), designed by W. R. Headley, ARIBA, London Midland regional architect, British Railways, under the direction of A. N. Butland, MICE, chief civil engineer (photo: TDA)



Head of a Stag (see this page)

McMorran). It is as the expression of an unfamiliar and intriguing personality that his work will perhaps be most appreciated. Animals remain the most frequent and typical subjects, and in his attitude to them is often reflected that morbid trait which was finally to destroy him. The domesticity of dogs fascinated Landseer so that he would sometimes exaggerate it into sentimentality or emphasize disconcertingly a likeness to human beings. He could neither understand nor convey the alien and terrifying savagery of animals—compare any of his interpretations of it with the wild creatures of Delacroix—but 'The Challenge' is a unique expression of mood in terms of line and colour and the serene beauty of a stag.

* * *

MOST OF THE PORTRAITS and figure compositions are very dull, weighed down with dead game and dogs and Scottish genre detail. This makes all the more surprising a fine Sir Walter Scott portrait, or the oil sketch of Victoria and Albert in which the queen's silky figure is only just emerging from an unspoiled eanvas. The limited scope of Landseer's art prevents him from treating potentially monumental and heroic subjects with any degree of power, but in the concentrated and slighter form of a sketch or caricature his drawing facility and curiously spontaneous touches of humour are pure enjoyment. A stroke or two of the pen, the wash running as if by accident down the paper, and there is Lord Stanley of Alderley behind his newspaper or Dr. MacLagen 'trying on a bonnet.'

Many will be aware of Landseer's evident lack of interest in architecture, and they will find in the drawings 'Croydon Church' and 'Interior of a Chapel' sad confirmation of a weakness of inspiration which even the Academy's collection of his best things can do little to disguise.

From the Caves of the Dordogne

AN EXHIBITION currently on view at the St. George's Gallery, Cork-street, London, W, displays six full-size copies of some of the most remarkable and interesting paintings from the Lascaux caves in southern France. These beautifully preserved naturalistic animal paintings, usually referred to as Franco-Cantabrian or Upper Palaeolithic cave art, executed over 20,000 years ago on the walls of the narrow grottoes of the Dordogne, were made from scale drawings completed by Mr. Douglas Mazonowicz in the caves, working under considerable difficulties. The copies were hand-drawn on silk-screens, each image requiring eight to ten full-size screens to obtain sufficient mutations of colour: the largest print measures almost eight feet by four. These faithfully reproduced and actual-sized copies are designated for use as murals in private houses or public buildings, or to adorn lecture halls and classrooms in colleges and schools.

* * *

THE SIX FULL-COLOUR REPRODUCTIONS include a frieze of small horses, reminiscent of the Shetland pony; a group of red deer stags, in which there appears a black symbol of doubtful interpretation; a horse, the so-called 'Chinese' horse from its similarity to related animals in Chinese paintings; the head of a bull, the original of which is eighteen feet long; the head of a stag (reproduced here); and the largest of them all, two male bison running apart. The prints are displayed in an entirely new and original method of exhibiting large works of art in a restricted space. They are mounted on rollers suspended from the ceiling and let down individually by a series of pulleys. They are then displayed as a kind of drop scene against the Pompeian red wall of the newly decorated gallery.

A Country Cottage Conversion

THE CENTRAL FEATURE of the Design Centre's main spring exhibition, which opened on February 27 and continues until April 8, is the ground floor of a converted country cottage. The interiors have been designed by Lucy Wynne and suggest an approach that has so far rarely been used by those who buy old cottages for conversion, most of whom either furnish with cheap second-hand articles or comb the antique shops for period or imitation period furniture. The plan of this exhibition cottage has been arrived at by collating those of a number of actual old premises and suggesting the smallest number of major alterations. Such alterations include the replacement of an old staircase and storeroom by a new, wider and less steep staircase and a bathroom; a larder has been converted into a kitchen with a hatch leading through to the living room. 'Weekend Living' (the title of the exhibition which includes a goodly array of products for weekend pastimes) shows that modern furnishings can provide a sensible solution in an old cottage without being incongruous or expensive. The expense of a weekend cottage is taken for granted.

Accidents on the Increase

A DISTRESSING INCREASE in the number of building trade accidents in 1960, recently hinted at in Birmingham by the Minister of Labour, was confirmed in London last week by his Parliamentary Secretary, Mr. Peter Thomas, MP. Mr. Thomas told London Building and Civil Engineering Constructors' Accident Prevention Group that in the last 12 months there had been 20,596 reported accidents—over 2,000 more than in 1959—of which 665 were fatal, an increase of 67 over 1959.

Without glossing over the difficulties—technical and psychological—of securing high safety standards on site, this melancholy record just will not do. Not enough building firms are taking the problem seriously enough (it is significant that only 156 firms are members of the London group), and without a better appreciation of what accidents cost—in money and loss of productivity as well as in the more intangible but no less significant sphere of human suffering—not even the new Safety regulations, now in preparation, can help.

The LMBA are shortly to appoint their own Safety Officer, and we shall hope that he will be able to stimulate greater activity in the region. But this is not a London but a national problem, and it must be tackled accordingly.

National Buildings Record

THE NINETEENTH annual report (1959-60) of the National Buildings Record states that the accessions received during the year amount to 11,780 items, bringing the grand total up to 512,686. Over 100 photographs of early railway stations, many of which are now vanishing or are being drastically altered, were received through the good offices of the MoH and LG. The report includes eight reproductions of photographs of interesting old buildings that have disappeared recently or are threatened with destruction, among them Flete, Devon, an Elizabethan manor house with additions by Norman Shaw, Dale Park, Sussex, designed by Bonomi, future in doubt; Yeoman's Row, Kensington, demolished; and an interesting group of houses in Park Lane, most of which have been recently taken down. The report comes from 31 Chester-terrace, London, NW1.

Poet's Corner

A SOCIETY has been formed to save Bunning's Coal Exchange in Lower Thames-street from demolition.

Praise the protectors and their gunning
To save the dome of J. B. Bunning—
That rounded and symbolic whole
That shows us how we lived by coal;
May their endeavours never cease
To guard that cast-iron masterpiece.
Sing, too, of Sang, who gemmed its lines
With fern and arabesque designs.
Unique Exchange, with beauty shot,
Your destiny the melting pot
To help the traffic raise its speed?
A very poor exchange indeed!

ANON.

Publishing House, Holborn Circus

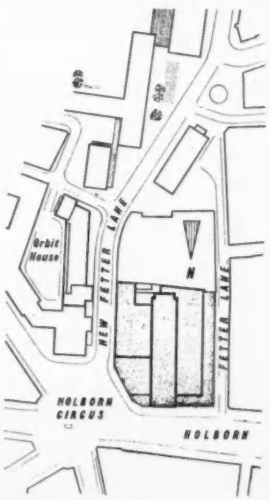
For The Daily Mirror Group

SIR OWEN WILLIAMS & PARTNERS, and

ANDERSON, FORSTER & WILCOX, joint architects and engineers

W. & C. FRENCH LTD., general contractors

view from Holborn-circus

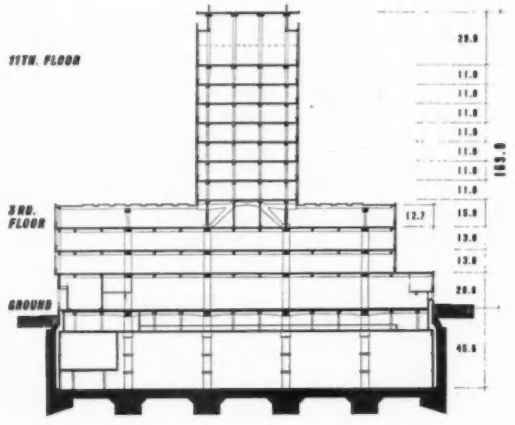


THE GENERAL REQUIREMENTS underlying the design of the Daily Mirror building were to provide a fabric to house highly complex and bulky plant and machinery, extensive material stocks and good working amenities for a large number of operatives. Coupled with these demands were those of providing a large head office building, with office facilities for editorial and administrative staff.

The basic influence in the ultimate design of the building was the housing of the press lines. Five of these lines will eventually be installed, each one being 162 ft. long by 25 ft. high and weighing in the region of 820 tons. Because of their size and weight, the most practical solution was to house them in the lowest basement. However their actual orientation within this basement was affected by other operating conditions, e.g., the relation of the plate foundry to the presses, the take off points for the finished newspapers, the arrangements for dispatching the papers, plus the housing of all ancillary equipment relating to the ventilation, heating and electrical installations.

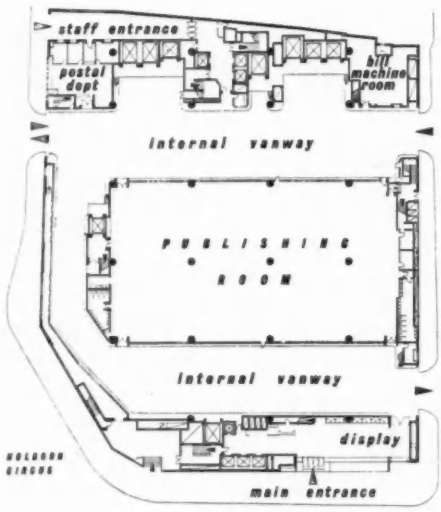
The main structure is of reinforced concrete with galvanised steel curtain walling to the flanks of both the tower and lower superstructure blocks.

The 20 main columns, set out in a pattern of 5 rows of 4 columns each, at 45 ft. centres, allow for the most efficient arrangement of the press lines and their ancillary equipment in relation to the publishing and dispatch areas. The Press Hall extends from the lowest basement floor to the underside of the first

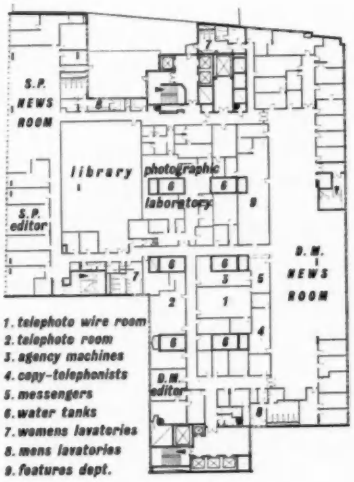


CROSS SECTION

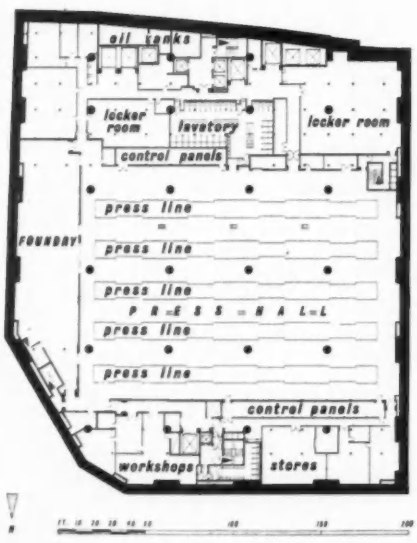
TOWER BLOCK



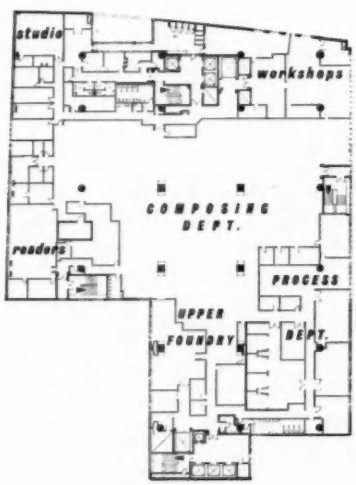
GROUND FLOOR



THIRD FLOOR



BASEMENT



SECOND FLOOR

basement, a total height of 35 ft., the five press lines covering a floor area of approximately 24,000 sq. ft.

Retaining walls were designed to span between the base of the wall and the ground floor slab. This method considerably reduced the amount of excavation required and allowed the central area of the site to be used for the storage of plant and materials while excavation for the retaining walls continued around the perimeter of the site. Excavation for the retaining walls was carried out in 15 ft. wide sections. Columns are supported on a raft foundation.

Below ground the intermediate basement floors were designed as two-way spanning flat slabs carried on secondary 12 in. square concrete columns. The first basement is hung from the ground floor beams by hangers at 15 ft. centres, thus giving the second basement reel storage and plant areas complete freedom.

The area of the first basement slab above the presses acts as a service platform for the newspaper conveyors, and a network of ventilation ducts is housed in this area.

The first and second floors follow the same pattern of construction as the ground floor, with 4 ft. wide main beams spanning between the main columns and an intermediate network of secondary beams at 15 ft. centres. On the three central column lines the wide beams have been divided into two 2 ft. widths with a 4 ft. gap between them. This allows vertical ducts and services to pass through the whole building height.

Three 45 ft. span arches were built from the third floor to carry the column loads from the tower floors. The beams at the foot of each arch include additional steel reinforcement to take the 500-ton direct tension induced by the arch loading, thus each beam of 2 ft. width contains 56 reinforcing bars of $1\frac{3}{8}$ in. diameter.

The main building contract cost £$4\frac{1}{4}$ millions. The total cost of main building including fees, 5 press lines (3 still to be installed) and all plant and equipment is £$9\frac{1}{2}$ million. A list of consultants, sub-contractors and suppliers is on p. 534.

1

Publishing House, Holborn Circus

1, the publishing room. 2, basement columns and foundation work. All beams, main and secondary, were cast with 4½ in. and 9 in. diameter holes through them at 3 ft. centres to enable horizontal pipes and services to pass through without the need for 'cranking' around beam soffits. 3, precast units used in construction of the plant room floor. 4, one of the 45 ft. span arches which carry the tower block above third floor level. Heavily reinforced beams support the feet of each arch

3

2

4

Letters to the Editor

Design of County Hall ; Confusions or Twists ; Insulating Floors After Flooding

SIR,—Further to Mr. Loweth's letter in 'The Builder' of March 10, I am afraid it is he who is barking up the wrong tree. Of course there were alterations made on Knott's competition plan. The LCC omitted the concert hall that was shown on the Belvedere-road front, and Knott decided that instead of the rectangular plan of the competition the building would follow the lines of the roads. These were the alterations which were all designed and worked out in Knott's office in the Adelphi, not in Mr. Riley's office in Spring-gardens.

Mr. Loweth originally inferred that Hiorns was responsible for the design of the County Hall; he is now suggesting that he was only probably responsible. Mr. Leathart is correct in his statement that all Riley did was to rubber-stamp Knott's sketch drawings and designs. These were prepared, as I previously stated, in Knott's office in the Adelphi.

Regarding personality, all I can say is that Mr. Loweth cannot possibly have known Mr. Knott. Of course, there are many architects who prefer the design of the later blocks of the County Hall to Knott's competition effort, but there are of course also many architects who do not know good architecture from bad.

W. FRASER-GRANGER [FRIBA],
2 Haynes-road, West Worthing.

Confusions or Twists

SIR,—It has been said that this is not an age of spires, and that one may more often read of old spires falling or being taken down than of new spires being built. If the word 'spire' is held to mean the raised or elevated roof of a tower (which is one of the meanings given by dictionaries and glossaries—and spires were indeed originally developed from the pyramidal roofs capping Norman towers) that comment must be accepted.

But from time to time photographs appear of new churches with new spires of strange materials—aluminium lattice or fibre-glass or laminated timber. Most recently in the news has been that gold-leafed 70-ft. spire, weighing two tons, constructed by a yacht-builder at Gosport for the new Mormon church in South Kensington . . . 'triangular and finely tapered, it is built entirely of teak planking, braced internally, and horizontally grooved outside, which makes it look like an enormous yacht's boom.' Some of these various ultra-modern spires stand near the churches to which they belong but not on towers at all. Traditionalists may therefore be tempted to deny that they are properly spires at all.

But second thoughts are necessary. Though traditional spires developed from pyramidal tower roofs, the word itself (from Old English and German *spir*) relates not to any function of specialised or ornamental roofing but to the act of thrusting or shooting upwards. Some trees have spires and already spires are rising in the garden from the earlier and hardier bulbs. So the ultra-modern, non-traditional spires cannot be denied the old traditional name.

Misunderstandings are inevitable because traditional spires have long been confused, in the popular mind, with the ideas of inspiration and aspiration—words whose 'spire' element comes from a distinct source with a quite different meaning and idea: cf., rather, conspire, respiration and transpiration, all from the Latin *spirare*, to breathe.

J. D. U. WARD,
Rodhuish, Minehead.

Insulating Floors After Flooding

SIR,—A correspondent writing in 'Trade News' in 'The Builder' of January 20 suggests that the opportunity given by lifting the floorboarding (to dry out a floor) should be utilised to insulate the floor. Beneficial as this may be, it is dependent upon certain basic points when taken at this particular time (i.e. after flooding or excess presence of moisture).

These are simply (1) that the oversite must be concreted—so that no further moisture rises; (2) that the insulation be laid at the bottom edge of the joists—giving incidentally the best results by virtue of the additional cavity; (3) that the joists are treated with a fungicidal fluid before fixing the insulating material.

The reason for these prerequisites is that timbers, when they have once been wet, are more prone to fungal decay (and attack by wood-boring weevil) and retention of the damp in the joists when neither process mentioned in (1) or (3) has been carried out; laying a reflective insulation just under the boards would enhance the possibilities if not the probabilities of these decays.

P. P. M. ALDENTON,
Kenilworth.

'Very enterprising of the Minister to promote a competition. Obviously where there's Hope there's life.'

RIBA Provincial Meeting

President to Meet North of England Members in May

A MEETING of RIBA members in the North of England will be held at the Queen's Hotel, Leeds, on Saturday, May 27.

At its meeting in December, 1960, the RIBA Council approved a number of proposals designed to improve the liaison with the members in the provinces. One of these proposals was that from time to time meetings of members should be held in regional centres, to enable provincial members to have opportunities similar to those available in London (for example, at the annual general meeting) to discuss current issues with the honorary officers of the Institute.

The meeting in Leeds will be open to members, students and probationers, and the agenda will be arranged so as to ensure that part of the time will be spent discussing the most important current issues, with ample time in addition for questions on any other topic. The President, the hon. secretary (Donald Gibson), the hon. treasurer (Hubert Bennett), the chairman of the Allied Societies Conference (Herbert Jackson), at least one other vice-president (Hugh Wilson) and the chairmen of the Public Relations Committee (W. G. Howell) and the Practice Committee (A. G. Sheppard Fidler) will be present.

The meeting will begin at 2 p.m., and will continue until about 4.45 p.m. There will be tea at 5 p.m., during a break of more than an hour to enable members to speak informally with the honorary officers, or with members of the RIBA staff who will be present. At 6 p.m. a lecture 'America Today: A Review of Planning and Architecture,' will be given by Percy Johnson-Marshall, senior lecturer in architecture at Edinburgh University who is in charge of the new Civic Design course there. The lecture is open to non-members.

Dinner may be had at the Queen's Hotel afterwards, but members who wish to have dinner are asked to inform the Secretary of their Allied Society so that numbers may be estimated.

Competition News

Housing Layout, Romsey, Hants

ROMSEY TOWN CLERK is seeking advice from the RIBA as to the institution of an architectural competition for the lay-out of site and for erection of dwellings, including flats at rear of The Hundred, Romsey. The council is most anxious that 50 dwellings be completed this year.

Trinity College, Dublin, Library

ONE HUNDRED AND TWENTY-TWO DESIGNS had, up to March 8, been received in the international competition for an extension to Trinity College Library, Dublin. Final day for receipt of designs is March 21. The result is expected late in May. There is an entry from the USSR.

Reconstruction of the Dolphin Inn at Norwich

FLETCHER WATSON AND PARTNERS, architects ; R. G. CARTER LTD., builders

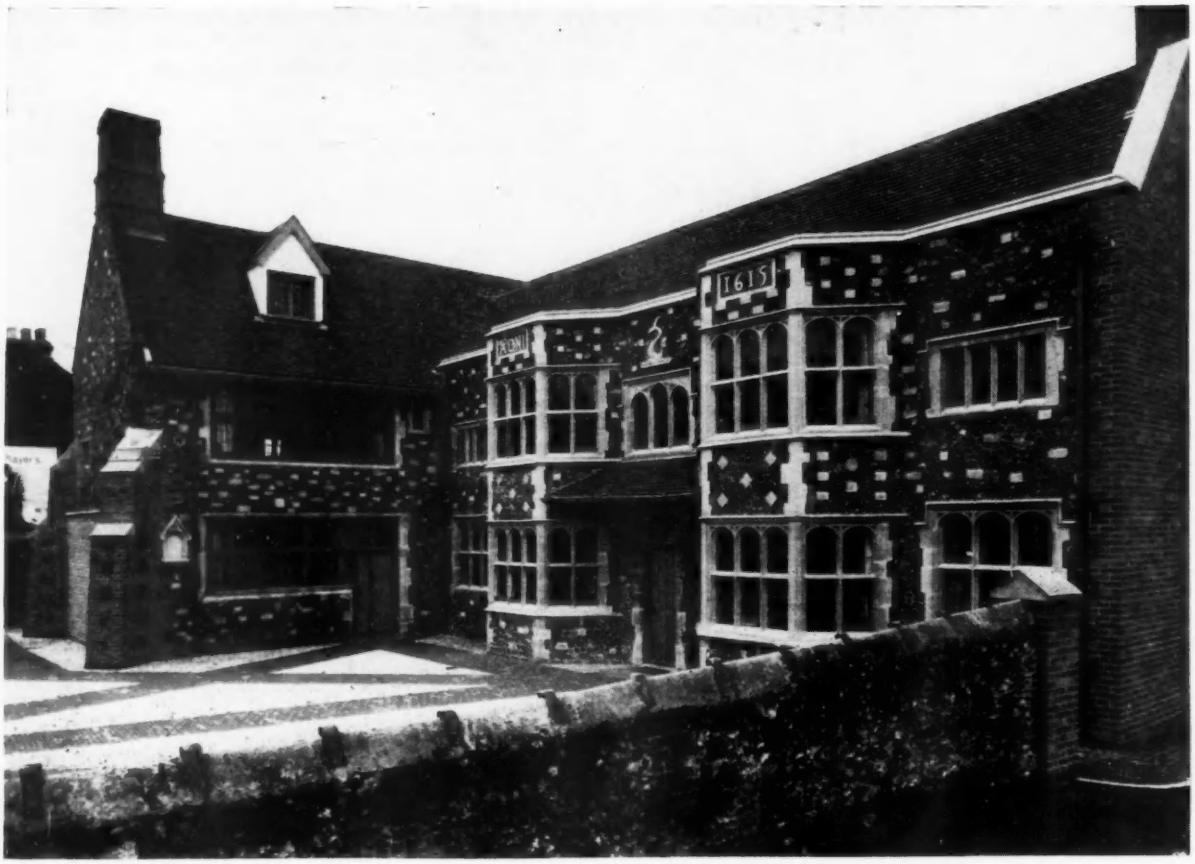
perspective by Mr. J. Fletcher Watson showing the original inn and adjacent cottages which have been demolished

THE ORIGINAL HOUSE at Norwich, known for more than two hundred years as the Dolphin Inn, was of considerable architectural merit and could be classed among the best of its period in the country. Banister Fletcher included illustrations of the building as an example of a Medieval inn in his ' History of Architecture on the Comparative Method,' and several of its fireplaces were illustrated in the folio of ' The Domestic Architecture of England during the Tudor Period ' by Thomas Garner and Arthur Stratton.

The house was originally built in 1587 by Richard Browne who eventually became Sheriff of Norwich, and in 1647 it was used by Bishop Hall when he was turned out of his palace and bishopric by the Puritans. In 1752 it became an inn and continued as such until its near-destruction by incendiary bombs in 1942. For eighteen years the building remained a neglected ruin until in 1957 it was shored up to prevent collapse.

The inn has been restored by the brewers, Steward and Patteson, with the assistance of the War Damage Commission, to resemble as closely as possible the external appearance of the original. Internally it has been replanned to provide two bars, cloakroom accommodation, a bottle store, a cellar, and living accommodation for the landlord. Care has been taken to avoid bogus ' old world ' furnishings and fittings; certain parts of the original fabric have been built into the scheme, but generally the aim has been to produce atmosphere through the use of sympathetic materials. The majority of

details of the ruined state of the building showing the extensive structural cracks

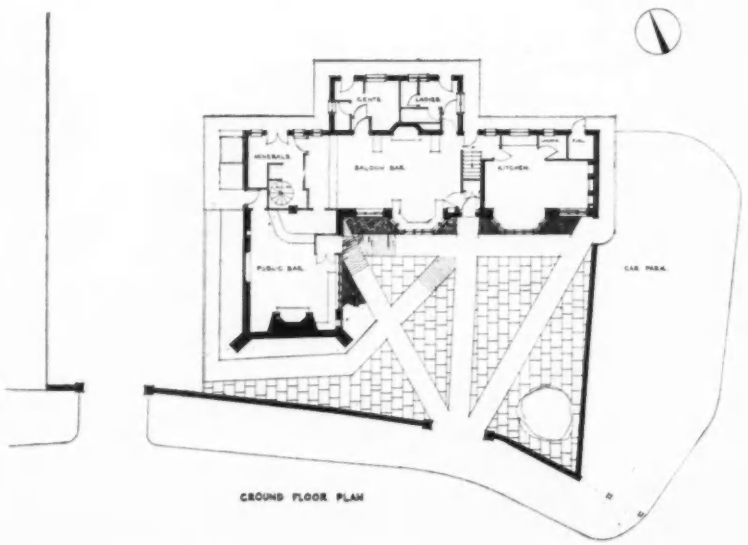


view of the completed reconstruction from the south east

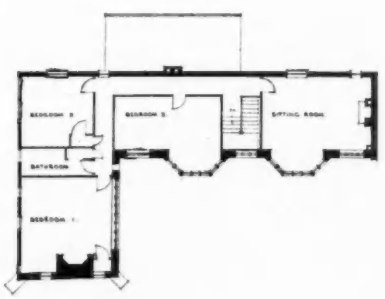
the seats, counters and fittings are of oak. The colour scheme has been produced with the deliberate aim of avoiding pale pastel shades and obtaining a somewhat dark background to emphasise the rich colouring of cushions and curtaining material. The architects have designed a rather robust version of the old type of public house settle, the winged arms being some 2 in. thick.

Before the work of reconstruction began the building contained extensive structural cracks which necessitated very delicate handling. Only a builder of high calibre could have managed this without serious accident to the original structure, much of which it was felt desirable to preserve. The architects have pointed this out as a reflection of the commendable skill of R. G. Carter Ltd.

When building work actually started it



GROUND FLOOR PLAN



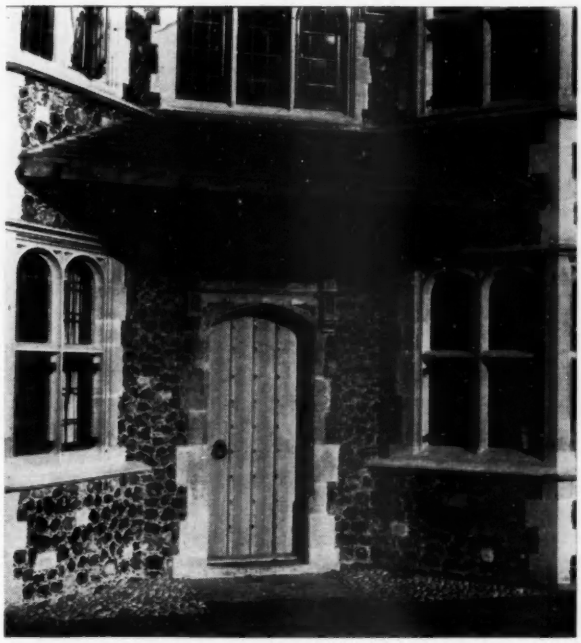
Scale: 1 in. = 32 ft.

FIRST FLOOR PLAN

was found necessary to rebuild the entire south front containing the two bay windows, the outward lean of the walls being so marked that it would have been unsafe to retain them. The projecting wing on the west side has been left in its original form, except for the two corner buttresses, the rebuilt chimney, and the strengthening wall at the lower part.

Great care has been taken over the flint and stone work, and considerable effort was made to find craftsmen who would produce the very best workmanship the result of which is that the general finish and standard of work is extremely high. A great number of the knapped flints were reclaimed from the site ruins and the old method of filling in the joints between the flints with similar broken flints was effectively carried out.

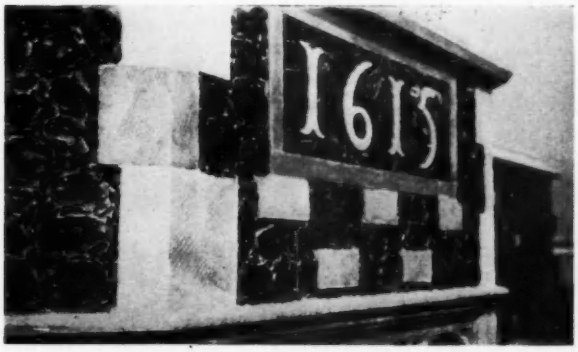
The gutters throughout are mainly in



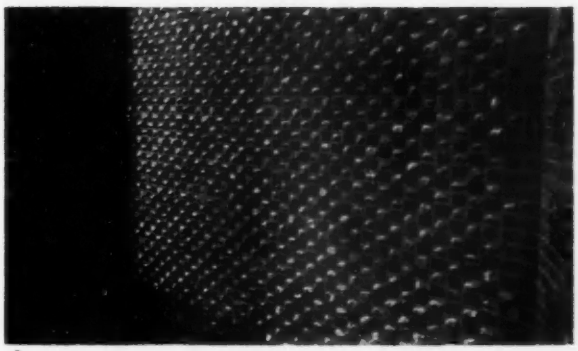
porch and entrance to saloon bar

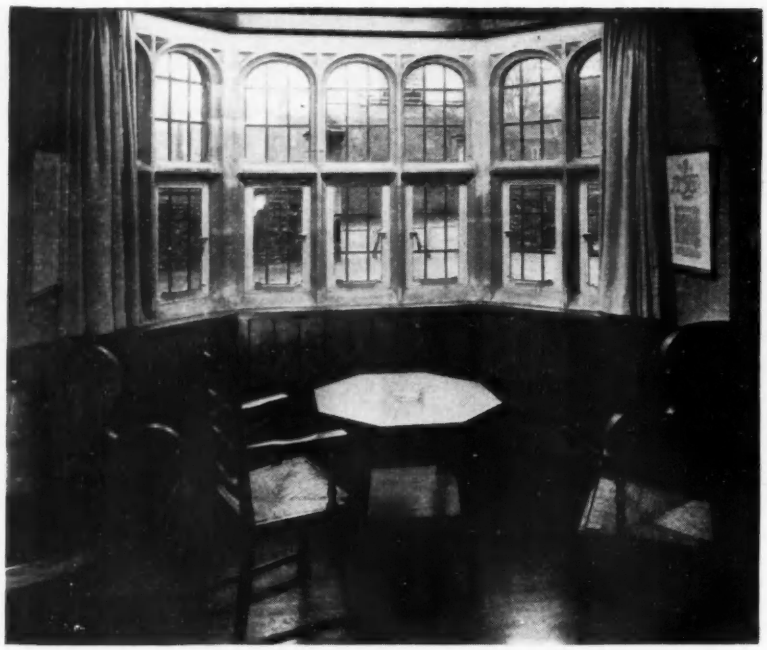
view from south towards public bar

paving textures in the forecourt



patterns in brick, flint and stone





the Dolphin sign in stone

hardwood with lead lining. The half timber first floor of the west elevation, the projecting buttressed wing, consists of solid oak vertical and horizontal timbers which are rebated internally to give an effective weatherproof construction.

The specially designed Dolphin sign, suspended over the entrance to the forecourt, has two different faces. The one facing the road shows the Dolphin jumping out of the water, and on the reverse side the Dolphin is shown under the water. A replica of the original inn sign has been carved in stone and built into the wall over the first floor window above the entrance to the saloon bar. The forecourt has been laid out with brick paths and paved and cobbled areas presenting varied and interesting textural effects to blend easily with the equally interesting wall textures of the building.

Although much of the original building has been preserved the major part, including the stone-mullioned windows, has been rebuilt using old materials, combined with Ancaster stone and knapped flintwork. Prominent features in the restored front façade are the label moulds above the flattened arches and the pedimented entrance doorway, characteristic of the later Gothic period. Grey facing bricks and flints have been used to form the buttresses to the gable end facing the main road, and the red brick diaper pattern has been carefully restored at higher level.

Internally there was a fine moulded plaster ceiling of geometric pattern, some of the plaster moulds of which have been salvaged and built in above one of the three original Tudor fireplaces.

Originally the inn was flanked on one side by a group of cottages as is shown in the architect's perspective drawing. From the aesthetic viewpoint it would have been advantageous to have preserved these cottages and this in fact was the architects' initial intention but for the need for extra car parking space.

above and below are two internal views of the saloon

C. N. LAMBERT, ARIBA, architect-in-charge. PHILIP PANK & PARTNERS, quantity surveyors.

sub-contractors & suppliers:

Flooring: Jewson & Sons Ltd.; *glazing:* G. King & Son Ltd.; *stonemasons:* A. J. Woods & Sons; *electrical installation:* Eastern Electricity Board; *gas installation and appliances:* Eastern Gas Board; *specialist ironmongery:* H. E. Taylor & Co. Ltd.; *plumbing:* Beaven & Sons Ltd.; *asphalt tanking and felt roofing:* East Anglian Asphalt Co.; *lift:* Gimson & Co. (Leicester) Ltd.; *soft furnishings:* Trevor, Page & Co. Ltd.; *lettering:* Gilbert C. Lamb; *sanitary ware:* B. Finch & Co. Ltd.; *spiral staircase:* Sebry Staircases & Ironworks Ltd.; *new reproduction chairs:* Robertson & Colman Ltd.; *light fittings:* Falk, Stadelmann & Co. Ltd.; *windows:* The Crittall Manufacturing Co. Ltd.

House at Hampstead, NW3

BOISSEVAIN & OSMOND, architects
HOWARD FARROW LTD., general contractors

The entrance hall, glazed full height and extending through both storeys. The general design is unusual in that bedrooms are placed at ground floor and living rooms at first floor level

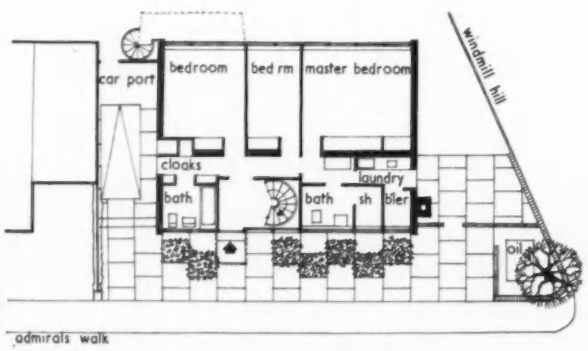
elevation to Admiral's-walk

THE HOUSE, at 13 Admiral's-walk, Hampstead, is on a restricted site and therefore to take advantage of the view the living rooms are placed at first floor, with bedrooms at ground level overlooking the garden. In order that the living accommodation was not completely isolated from the garden a balcony was provided at first floor level adjacent to the dining room area with a spiral staircase leading down to the garden.

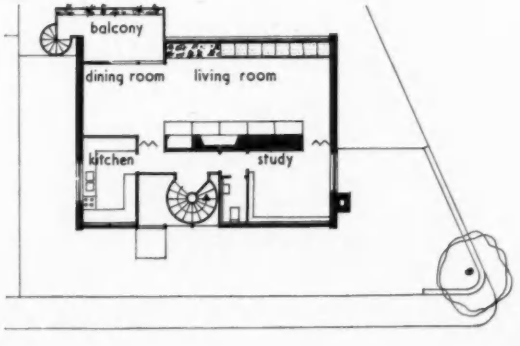
The main elevation has full height glazing to the two-level entrance hall, fully revealing the circulation space and spiral staircase. Otherwise the windows are at high level to afford privacy from the street.

Construction consists of cavity brick flank walls and a brick spine wall, with timber frame walls on the north and south sides. Foundations are short bored piles with r.c. ground beams. Roofing is 'Hardrow' concrete slates on battens, felt, and glass quilt, with 9 in. x 2 in. rafters bolted at the ridge and supported on the spine wall and the western red cedar framed walls. Cavity walls have 2 in. multi-red facings and 4 in. Thermalite block inner skins.

GROUND FLOOR, Scale : 1 in. = 24 ft.



FIRST FLOOR



Flooring is sapele strip, teak boarding and cork tiles. Glazing is ¼ in. plate on the main elevation and 32 oz. elsewhere. Partitions are brick and Paramount. The car port roof is felt on 2 in. woodwool slabs and joists. Heating is by an oil-fired low pressure hot water installation.

The final cost including external paving and fencing was £10,550. Photos by 'Homes & Gardens.'

sub-contractors & suppliers:

Heating & hot water installation: G. N. Haden & Sons Ltd.; *joinery:* Ferguson & Guiver Ltd.; *electrical installation:* S. G. Thaine (Electrical Installations) Ltd.; *flooring:* Philip Flooring Co. Ltd.; *tiling:* Carter & Co. Ltd.; *cork flooring:* Armstrong Cork Co. Ltd.; *fencing:* Permafence Ltd.; *blinds:* Airelite Venetian Blind Co. Ltd.; *spiral stair & balustrading:* H. & C. Davis & Co. Ltd.; *ironmongery:* H. & C. Davis & Co. Ltd. and Alfred G. Roberts Ltd.; *rainwater goods:* Ashley Brandon (Kensington) Ltd.; *lighting fittings:* Merchant Adventurers Ltd.; *sanitary goods:* Broads Manufacturing Co. Ltd.; *hearth stones:* Hornton Quarries Ltd.; *veneers:* William Mallinson & Sons Ltd.; *paving:* Neolite Ltd.; *facing bricks:* Richard Parton (Builder's Merchants) Ltd.

House at Hampstead, NW3

Above, 2 in. red brick chimney breast with built-in bookcase, and kitchen-dining room servery unit beyond, constructed in cherrywood. Below, continuous windows and window seat in the living room. Finishes generally are plasterwork painted, and hardwood flooring

A representational sculpture built from granite setts in the shape of a tadpole feature

The smallest of the play sculptures, a bird, sited in a forecourt between tall blocks of flats

Play Sculpture on Housing Estates

Developments by the Birmingham City Architect's Department

YOUNG CHILDREN like to play in small groups near their homes. In cities this means either in the courtyard between their houses or in the street where in many cases they constitute a danger and a nuisance. Apart from the physical risks, however, this behaviour pattern is a healthy one, and at Birmingham the policy is to site a play area as close as possible to each new block of flats, so that mothers can see and, if necessary, control their youngsters' activities.

Sculpture in the main children's play area at Kents Moat Estate

The Birmingham City Architect's Department, city architect Mr. A. G. Sheppard Fidler, MA, FRIBA, AMTPI, considered that conventional play equipment, however good for exercise, did little to stimulate the child's imagination, and tended to look unsightly in intimate domestic landscape settings. For these reasons, concrete play sculptures were first introduced in 1959, and the six already installed have proved so successful that more are in preparation. These include bolder abstract sculptures to a larger scale than hitherto, designed to encourage climbing, swinging and balancing by older children, and sited in special play areas shared between several blocks.

Whether for toddlers, for older children, or for use by both, each play area is designed individually as a complete entity, with play sculpture forming an essential landscape element.

To carry out this programme a team has been set up in the landscape section of the architect's department, comprising the department's landscape architect, the

Another bird sculpture for children of all ages at the Millpool Hall Estate

sculptor, John Bridgeman, ARCS, ARBS, and the City of Birmingham direct labour building department. The first sculpture executed by this team was a slide constructed in the restricted play area of a high density housing unit in the Nechells Green redevelopment area used by children of all ages. It was constructed of 'in situ' reinforced concrete with an inset brass slide, and the formwork was designed for economical re-use on at least four occasions.

The remaining play sculptures, with the exception of the representational type built up on the site, have been designed and executed entirely by Mr. Bridgeman in his studio. The smallest of these, a bird on the Bangham Pit Estate, is sited in a forecourt between blocks of flats. It is designed for toddlers and is sufficiently raised on its concrete stalk to enable them to swing and somersault over its wings.

Larger, and rather less representational, is another bird at the Millpool Hall Estate, designed for children of all ages. It is sited near to a clump of Acer Cappadocicum at the crest of a grass slope, with easy access from five 8-storey point blocks of flats and some nearby houses.

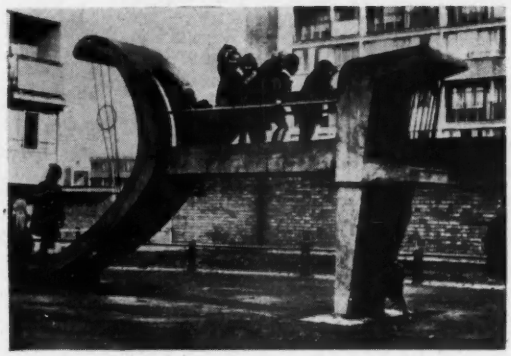
At Kents Moat Estate sculptures have been provided for two play areas. The main children's play area was restricted in relation to the numbers to be catered for, and the problem was not only to attract the children to it, but to discourage straying on to the adjoining road, or scaling nearby stores, to the annoyance of the ground- and first-floor tenants. Here, the sculptures seem to have proved a satisfying counter-attraction to both.

The separate toddlers' play area, in a secluded corner of the site, is equipped with seats for the mothers, while the play sculpture in the form of a bird 2 ft. 9 in. high, backed by a group of Betula Verrucosa, has also proved popular.

The most successful of all the sculptures has been that used at Hawkesley Farm Moat Estate. Of abstract design, this is a good example of functional play sculpture. Constructed of concrete, modelled and built up on a metal armature and finished in dull metallic paint, it stands on a hard surface base at the entrance to the play area used by the older children, serving not only as an introduction to the playground but also as an important feature in the general landscaping of the estate.

Finally, there is a third group of representational sculptures built up on site from the granite setts now excavated in quantities from redundant roads in the city. Two examples are a tadpole feature in the sunken play area for toddlers at unit 13 in Nechells Green, and an octopus built in another sunken background behind the city's first 16-storey block of flats on the Lyndhurst Estate at Erdington.

A slide constructed of in situ reinforced concrete



News of the Week

David Kindersley's Workshop

THE CURRENT EXHIBITION at the Crafts Centre, Hay Hill (until March 25), is of lettering, architectural and heraldic carving, painting and gilding by the David Kindersley's Workshop Group, writes Basil Marriott. This is of great potential usefulness as well as interest to architects.

Most architects think they know about lettering—naturally, relating as it does to order, form and proportion, and the satisfaction of functional and æsthetic requirements—and many of them do. But few would deny being mere handless minds when it came, say, to the actual execution of a carved inscription, as opposed to laying it out on the drawing-board. There are few branches of design-craftsmanship where the hand and eye are so indivisible and interdependent; and that sensible minority would enlist the collaboration of such craftsmen as Kindersley before even tentatively deciding position, scale and material. A visit to this exhibition might well convert that minority into a majority.

The group's considerable work in the Cambridge colleges is well known—Trinity's ante-chapel was their first major commission—but Kindersley's advisory work for the Ministry of Transport and, for instance, his recent research in perfecting a mechanical system for spacing type as a basis for its photo-setting shows his awareness of the time of day, and of his potential value in the less sheltered fields of industrial and commercial applications for the crafts in which he and his younger associates are masters.

Redevelopment Near St. Paul's

A SEVEN-ACRE SITE on the north side of St. Paul's Cathedral is being cleared ready for the construction of new buildings. This scheme will comprise a major section of the rebuilding work which will provide a worthier setting for the cathedral. The design of Sir William Holford, PRIBA, is to be followed, but a number of changes have been made since his 1956 layout was announced, and upper level walkways are to be more extensive than originally planned.

The rebuilding scheme is to be carried out by a consortium of four developers. These are the Church Commissioners, owners of the freehold, and three contractors, Trollope and Colls Ltd., John Laing and Son Ltd. and George Wimpey Ltd. The consortium has appointed Trehearne and Norman, Preston and Partners architects for the work, and their detailed plants are understood to be under discussion with the planning authority.

Architectural Historians' Conference

THE EXECUTIVE MEETING of the Society of Architectural Historians of Great Britain, held at York on March 10, decided to hold the annual conference at Edinburgh from September 15 to 17. Further information may be obtained from the honorary secrtary, Mr. F. I. Jenkins, MA, ARIBA, University of Manchester, Manchester, 13.

Eastbourne's New Congress Theatre

EASTBOURNE'S NEW CONGRESS THEATRE, to be built on a site which forms part of Devonshire Park, adjoining the Winter Garden, is to be a multi-purpose building for musical and variety shows, conferences, ballet, opera, plays, meetings and lectures. The theatre has, however, been designed for conferences and concerts with room for an audience of 1,680, or for theatrical shows to seat 1,400. It will have a stage 40 ft. deep by 80 ft. wide, and there will be an adjustable proscenium. The architects are Messrs. Bryan and Norman Westwood and Partners, and the Council's entertainments and pleasure grounds committee has recommended that the tender of £387,980, submitted by Walter Llewellyn and Sons Ltd., be accepted.

The AA Reception

THE ANNUAL RECEPTION of the Architectural Association will be held on Thursday, April 13, at 34 Bedford-square, WC1, from 8.30 p.m. to 1 a.m. There will be dancing to two bands, cabaret, exhibitions, bars and buffet and film shows. Dress will be dinner jackets. Tickets (£1 single, 35s. double; students 10s. single, 17s. 6d. double) from the Secretary.

FAS Mock Arbitration

THE LONDON BRANCH of the Faculty of Architects and Surveyors is to hold a mock arbitration at 68 Gloucester-place, London, W1, on March 22. Mr. Peter Tait, FIArb, will preside as arbitrator. The part of the claimant will be taken by Mr. W. E. Sigley, of Messrs. Sigley Brothers, who will be represented by a solicitor and a quantity surveyor, Mr. B. G. Assiter, FFS. The respondent will be Mr. S. Clough, FRIBA, PPFAS, ARCA, also supported by a solicitor and a quantity surveyor, Mr. A. Fry, FFS, MRSH. Tickets, of which a limited number only is available, may be obtained from the honorary secretary of the Faculty, Mr. R. E. Visser, AFS, c/o G. S. Agar, PPFAS, 37 Bedford-square, London, WC1. The meeting will begin promptly at 7 p.m.

Better Offices

A PUBLICATION, 'Better Offices,' issued by the Institute of Directors (obtainable from 10 Belgrave-square, SW1, price 12s. post free), in setting a pattern for better offices, draws on a deep fund of expert opinion and in subject matter ranges from architectural and aesthetic considerations to the serving of tea and the law of landlord and tenant. The committee which has selected contributors, headed by Mr. Peter Trench, has done its work well. Sir William Holford provides a foreword in which he says that the average office block put up since the war still has a long way to go in its progress towards the ideal. 'We should,' thinks Sir William, 'apply the same brains and skills and methods of organisation to office building as we have to other types of building.'

Contributors include Mr. G. Grenfell Baines, who writes on the siting and planning of office buildings; and Sir Thomas Bennett and Mr. Philip Bennett, who write on 'How to get a New Building' and Mr. Cyril Sweett, who outlines what it will cost. The publication is well up to the usual high standard of the Institute.

Reception for Visiting Soviet Architects

AN INFORMAL RECEPTION in honour of a group of 40 visiting Soviet architects and builders will be held at the premises of the Society for Cultural Relations with the USSR, 14 Kensington-square, W8, on Saturday, March 18, from 5.30. Admission (including coffee) will be 2s. 6d.

The Treasures of Audley End

AUDLEY END, at Saffron Walden, Essex, which has been described as a monument to three hundred years of gracious living, will be showing some of its treasures at an exhibition to be held at the Heffer Gallery, Cambridge, from March 17 to April 8. Admission will be free.

Consultant for Bognor Redevelopment

BOGNOR REGIS TOWN COUNCIL is to invite the Royal Institute of British Architects to nominate a consultant-architect to advise on proposals for the redevelopment of the sea-front which is estimated to cost £10m.

Establishing a Standard

IN A 'SCIENCE SURVEY' TALK on Thursday, March 23 (BBC, Network Three), Mr. H. A. R. Binney, CB, Director of the British Standards Institution, will describe the kind of technical problem that often has to be overcome before a British Standard can be evolved. The talk will be repeated on the following Saturday morning (March 25) in the Home Service.

Visit to Copenhagen

THE BRISTOL BUILDING CENTRE is organising a visit to Copenhagen from April 21 to 24 next. The cost will be £30 (including air fare). Applications to the Secretary, Bristol Building Centre, Colston-avenue, Bristol 1, by March 25.

BF & CW Ladies' Festival

HONORARY LIFE MEMBERSHIPS were bestowed upon Mr. R. E. Stenning, former LMBA Secretary, and Sir Richard Costain, CBE, at the annual ladies' festival of the Provident Institution of Builders' Foremen and Clerks of Works held in London on March 11. Deputising for Sir Richard, this year's chairman, Mr. E. J. Cook announced that the Appeal's Committee had so far raised the sum of £1,041. This compares with the £860-odd raised last year. Speakers included the President, Mr. J. W. Tiller, the vice-president, Mr. G. E. Lyddon, and Brigadier A. G. Bonn, CBE, who asked members to be on the lookout for cases of hardship.

Estate Management Director, Cambridge

THE UNIVERSITY OF CAMBRIDGE will shortly advertise for applications for the post of Director of Estate Management, for which a stipend of £3,000 plus allowances will be offered.

Flints. County Architect to Retire

MR. WILLIAM GRIFFITHS, LRIBA, County Architect of Flintshire since 1950, is to retire on May 31.

Professional Announcements

As from April 1, 1961, the London office of MESSRS. MANNING AND CLAMP, chartered architects, will be 37 Norfolk-street, Strand, London, WC2. The address of the Richmond office remains unchanged at 19 The Green, Richmond, Surrey.

MESSRS. MYLES-WHITE AND ASSOCIATES, chartered architects, of Sheffield, have moved to larger premises at 91 Clarkehouse-road, Sheffield (tel.: Sheffield 64474/5) where they will be pleased to receive trade literature. The address of their office at Mansfield, Notts., will remain unchanged.

MR. KENNETH F. SPICER, FIAS, FIQS, MRSH, corporate quantity surveyor, is moving his office to 1a Cavendish-square, London, W1 (tel.: Langham 4805/6/7) to which any correspondence should be addressed on and after March 17.

MESSRS. JAN FARBER & BARTHOLOMEW, architects, will be pleased to receive current trade literature and technical data at their new Essex office, at Nevendon Hall, Basildon, Essex.

A Hundred Years Ago

From The Builder of March 16, 1861

CELLAR DWELLINGS IN MANCHESTER.—From a report presented to the Town Council from the Building and Sanitary Committee we learn that the number of habitable cellar dwellings in 1854 was 4,643, and the cellars then inhabited contained a population of 16,400, whilst the number on the 30th September, 1860, was only reduced to 4,467, and contained a population at that time of not less than 17,478, showing a reduction of only 176 cellars, and an increase of not less than 1,078 in population. The committee rightly say—"Such a result of six years' operation of the clauses introduced in the Act of 1853, with the avowed object of doing away as early as practicable with the occupation of cellars as separate dwellings, can hardly be deemed to be satisfactory."

Coming Events

FRIDAY, MARCH 17

INSTITUTE OF BUILDERS DISCUSSION CLUB (LEEDS & DISTRICT CENTRE).—'Methods of Restoring Ancient and Historical Buildings,' by Mr. G. B. A. Williams. Griffin Hotel, Leeds. 7.30 p.m.

SATURDAY, MARCH 18

NORTH WEST EDUCATIONAL ASSOCIATION FOR THE BUILDING INDUSTRY.—'Pre-Apprenticeship Courses,' by Dr. L. Kuttner. Rossendale College, Rawtenstall, Lancs. 10.30 a.m.

ROYAL INSTITUTE OF PAINTERS IN WATER COLOURS.—149th Exhibition. Institute's Galleries, 195 Piccadilly, W1. 10 a.m. to 5 p.m. (until April 27).

MONDAY, MARCH 20

INDUSTRIAL WELFARE SOCIETY.—Two-day course on: 'Site Labour in the Building and Construction Industries.' Robert Hyde House, 48 Bryanston-sq., W1. 9.45 a.m. (continuing over March 21).

TOWN & COUNTRY PLANNING ASSOCIATION (PLANNING FORUM).—'Oxford—Proposals for the Future City,' by Mr. J. Morton and Mr. T. Hancock. 28 King-st., WC2. 6.30 p.m.

TUESDAY, MARCH 21

INSTITUTION OF CIVIL ENGINEERS.—Joint meeting with British section, Société des Ingénieurs Civils de France: 'The Work of the Channel Tunnel Group.' Gt. George-st., SW1. 5.30 p.m.

RIBA.—Discussion on: 'The Purpose and Organisation of Development Groups.' 66 Portland-pl., W1. 6.30 p.m.

BBC (NETWORK THREE).—'Building Matters.' 7.30 p.m.

ELECTRICAL ENGINEERS (ASEE) EXHIBITION LTD.—10th Electrical Engineers exhibition. Earls Court, London (until March 25).

NORTHANTS, BEDS. & HUNTS. ASSOCIATION OF ARCHITECTS (NORTHANTS BRANCH).—'Victorian Architecture,' by Mr. C. Stewart. The Plough Hotel, Luton.

WEDNESDAY, MARCH 22

ENGINEERS' GUILD.—Conference on: 'The Professional Engineer—His Employment and Development.' Connaught Rooms, Gt. Queen-st., WC2. 9.45 a.m.

SPUR.—Mr. D. Rigby Childs on 'The Major Shopping Street: a review of opportunities and problems.' RIBA. 66 Portland-pl., W1. 4 p.m.

HOUSING CENTRE TRUST.—Joint meeting with diploma students, Town Planning Dept., London University: 'Study of a Housing Site.' 13 Suffolk-st., SW1. 6 p.m.

FACULTY OF ARCHITECTS & SURVEYORS (LONDON BRANCH).—Mock arbitration. 68 Gloucester-pl., W1. 7 p.m.

INSTITUTE OF BUILDERS DISCUSSION CLUB (MAIDSTONE & DISTRICT CENTRE).—Film and talk: 'Motorway,' by Mr. D. P. Weeks. Royal Star Hotel, Maidstone. 7.30 p.m.

THURSDAY, MARCH 23

INSTITUTION OF STRUCTURAL ENGINEERS.—'Rubber Tyred Overhead Cranes—Their Influence on the Design of Industrial Buildings,' by Mr. E. M. Lewis. 11 Upper Belgrave-st., SW1. 6 p.m.

ARCHITECTS' CHRISTIAN UNION.—Reception. Speaker: Mr. F. H. Wrintmore. RIBA, 66 Portland-pl., W1. 6.30 p.m.

INSTITUTE OF BUILDERS (MIDLANDS BRANCH).—'Building for the Future,' by Mr. A. Ling. Hotel Leofric, Coventry. 7 p.m.

FRIDAY, MARCH 24

BIRMINGHAM & FIVE COUNTIES ARCHITECTURAL ASSOCIATION.—'Birmingham University,' by Sir Hugh Casson. Birmingham Medical Institute, 36 Harborne-rd., Edgbaston 15. 6.15 p.m.

GUILD OF SURVEYORS.—Annual dinner and dance. Waldorf Hotel, Aldwych, London, WC2. 6.30 p.m.

REINFORCED CONCRETE ASSOCIATION (MIDLANDS COUNTIES BRANCH).—Joint meeting with Midlands Counties Branch of Institution of Structural Engineers: 'Models for Design and Research in Reinforced Concrete,' by Mr. G. Brock. College of Advanced Technology, Gosta Green. 6.30 p.m.

ART WORKERS GUILD.—'The Royal Academy: its History and Activities,' by Mr. S. C. Hutchison. 6 Queen-sq., WC1. 7 p.m.

RIBA GOLFING SOCIETY.—Eighth annual dinner. Milestone Hotel, Kensington Court, W8. 7.45 p.m.

Local Government in Greater London

RIBA's Comments on Royal Commission's Report

The Royal Institute of British Architects considers that the report of the Royal Commission on Local Government in London opens the way to long overdue reforms, particularly the planning of Greater London by a single authority.

In a statement, which has been submitted to the Minister of Housing and Local Government, the RIBA criticises the Commission's view that the major housing effort of the proposed Council for Greater London will lie beyond the Green Belt, and the Commission's acceptance of existing housing densities within Greater London. Acceptance of these densities, in the RIBA's view, would spread the built-up area far and wide beyond the Green Belt. The major housing effort of the Greater London Council should consist of schemes of urban renewal within the existing built-up area. For this the Council will require more extensive powers for housing and comprehensive redevelopment than the Commission proposed.

The RIBA statement also argues that if the Boroughs in the Greater London area are successfully to tackle the vast problems of building and reconstruction and attract competent architectural staffs, the Borough Architect must be made a statutory appointment. At present only 11 out of the 99 County, non-County and Metropolitan Boroughs and Urban District Councils have independent Architects' Departments.

Introduction

WE STILL CONSIDER that the Review Area did not allow of full consideration of the wider problems of the London region as generally understood in the context of Town and Country Planning, but nevertheless within the terms of reference of the Commission we consider that the proposals open the way to far reaching and long overdue reforms.

The main concern of the RIBA, as we stated in our evidence to the Commission, is the furtherance of good architecture and planning throughout Greater London, together with the effective and economical administration of planning and building control. We therefore recommended the reorganisation of London Government on two levels, with an elected Greater London Council, responsible for strategic planning functions, and at the local level a number of city district councils, whose main planning tasks would be to implement detailed plans within the framework already laid down by the Greater London Council.

The Royal Commission has accepted this broad pattern. It recommends the establishment of 52 Greater London Boroughs as the primary units of local government. These would be responsible for all functions except those which can only be more effectively performed over the wider area of Greater London by an elected Council for Greater London. This council would be the education and planning authority, responsible for the preparation and review of the development plan, traffic and main roads, with certain concurrent or supplementary powers for housing (particularly overspill) and other functions. The boroughs would be responsible for housing, personal health, welfare and children's services, environmental health, roads (other than main roads) and libraries, and they would have important functions in regard to education and planning.

The proposed Council for Greater London follows the general lines of our recommendations, but the boroughs proposed are smaller and therefore more numerous. We suggest that further consideration be given to the amalgamation of the smaller boroughs, or the use of joint staff for building and development purposes, where their programmes and resources might otherwise be too small to sustain first-class services. Otherwise we fear that in the special conditions of London there may be serious difficulties in recruiting the staff of the calibre needed to meet their increased responsibilities. To set up even smaller and more numerous boroughs than those proposed would have serious implications for recruitment at borough level and co-ordination at Greater London Council level.

Summary

Comments have been grouped into ten sections and a summary—The Architects' Departments; The Development Plan and control; housing, overspill and comprehensive development; highways; education; open spaces; building control; research and development; intelligence department; and the transition. The summary is as follows:

(a) The Commission's proposals open the way to long overdue reforms, particularly the planning of Greater London by a single authority.

(b) Further consideration should be given to the amalgamation of those boroughs whose resources and programmes might be too small to sustain first-class services, and to the use of certain services in common.

(c) If the boroughs are to attract competent architectural staffs the post of borough architect must be made a statutory appointment; but the boroughs should still make use of the services of private firms.

(d) We welcome the recommendation that the Council for Greater London should prepare the development plan, but anticipate difficulties arising from the control of development by the boroughs, unless the more important town planning applications affecting the positive implementation of the development plan are dealt with by the council.

(e) The Council for Greater London will require more extensive powers for housing and comprehensive redevelopment, and for buildings of any kind required to implement the development plan.

(f) The council should reassess the volume of overspill on the assumption that permitted densities are raised to acceptable levels and reasonable standards of open space achieved. Acceptance of present permitted densities would spread the built-up area far and wide beyond the green belt. The major housing effort of the council should not be a massive overspill beyond the green belt but redevelopment within the review area, consisting of major urban renewal schemes beyond the resources of most boroughs.

(g) The boroughs should be responsible for existing and proposed comprehensive development areas which are within their resources and lie within their areas. The Council for Greater London would be responsible for the other comprehensive development areas. It should have an urban renewal section (which could assist the boroughs) and will require concurrent housing powers.

(h) We welcome the proposal that main roads throughout the area should be the responsibility of the council as planning authority but the proposal that the Minister of Transport should define trunk roads in a built-up area could destroy overall planning. Both at council and borough level new roads must form part of a comprehensive plan, involving the redevelopment of the areas through which they pass.

(i) The Council for Greater London as Education Authority should be responsible for the education building programme, but schools can be designed by the architects of the borough, where the council so decides. The architects who design buildings should supervise their construction.

(j) The furniture and display section of the LCC Architect's Department should be continued by the Council for Greater London, and made available to the boroughs.

(k) We doubt the ability of the boroughs to create major new open spaces. This must be the responsibility of the Council for Greater London. The boroughs should administer and maintain open spaces.

(l) The same code of building control should operate in Greater London as in the rest of the country, but there should be a right of appeal or of application for waiver to the Architect to the Council or to the Minister.

(m) The proposed 'Intelligence Department' of the Council should be fully integrated with the work of town planning and of architecture.

(n) The Architects' Department to the Council should have a Research and Development section.

(o) The accumulated skill and experience of the larger Architect's Departments must be carried forward into the new authorities; the existing staffs require prompt and firm assurances about their future if the building programmes are not to be jeopardised.

More Everyday Things

BY ARTHUR W. KENYON, CBE, FRIBA

33. Early Competitions

AS NONE of us can think back a hundred years, we are lucky to have 'The Times' and 'The Builder' (my apologies to the Editor if I have got the order wrong!) to refer to when we want news of that time.

It recently came to my notice, I know not how, that in the autumn of 1863 two premiums of £25 each were offered through the Society of Arts for the best designs for cottages to be built either singly or in pairs at a cost which was not to exceed £100 a house. This had to include 20 per cent for contingencies and builder's profit and 5 per cent for superintendence of the work; the prime cost of the house, therefore, must not exceed £80. If anyone is interested they will find the report in 'The Builder' for 1864 on page 359, with illustrations on page 952, and they will discover that there were no less than 134 designs submitted for this competition.

I must admit that my curiosity was aroused and I read the whole account with great interest. The accommodation to be provided comprised a living room of 150 sq. ft. and a kitchen of 70 sq. ft. on the ground floor, with a ventilated pantry; and an upper floor with three bedrooms of which one was to be not less than 100 sq. ft.—somewhat substandard to our present way of thinking.

I went on to discover what more I could learn from this old volume—and by the way, what a wonderful place the RIBA Library is: I commend it to any members who may not have used it, as a veritable treasury of architectural knowledge, with willing and informed assistants to lead you by the hand to the particular source you need.

I found that the 134 designs were submitted by 107 competitors and that one of the prizes was for the Architectural Association and the other was open to all. The one for the AA was not awarded. There was a long report from the assessor which would gladden the heart of all the present-day advocates of the assessorial post-mortem. He did not seem to think any of the houses submitted could be built under £300 the pair. However, the winner apparently managed to get a house with three bedrooms into 640 sq. ft. which he claimed could be built for £80, or 2s. 6d. a square foot, which certainly allowed no waste. There was no bathroom and only an outside water closet, but that was a hundred years ago. The winner of this competition was one Mr. John Birch, who not only took the prize of £25 but was awarded a silver medal as well.

This sort of archive-delving may not have much to offer the modern architect in solving his 1961 problems, but I recommend it highly for its salutary qualities as relaxation from the stresses of modern practice and I would suggest it as a gentle exercise in occupational therapy in courses designed for the revival of weary architects.

Architects Registration Council of the UK

Statement to be Issued Concerning Property Development Companies

MR. CECIL KENNARD, OBE, FRIBA, vice-chairman, presided over the 116th ordinary meeting of the Architects Registration Council of the United Kingdom, held at 66 Portland-place, London, W1, on March 8. It was announced that a statement setting out the Council's views and rulings on the circumstances and conditions of engagement of architects by property development companies, is to be issued and will be published in the forthcoming annual report.

The report of the admission committee, submitted by its chairman, Mr. Vincent Burr, FRIBA, recommended that 260 applicants who qualified by examination under section 6(1)(c) of the Principal Act, and a further 22 who qualified under section 6(1)(d) of the Act and under regulation 26(a) (4) should be admitted to the register. The recommendation was agreed.

The report of the board of architectural education, submitted by Mr. Denis Clarke Hall, FRIBA, recommended that the diploma final examination followed by the examination in professional practice and practical experience, of the School of Architecture, College of Art, Portsmouth, be recognised as qualifying for registration with effect from June, 1960.

Mr. S. M. Cockerell, ex officio Master of the Art Workers Guild, has been appointed to the board in place of Mr. Stuart Tresilian.

The finance and general purposes committee, chairman Mr. R. O. Foster, FRIBA, reported that in accordance with the Council's instructions of October 12, 1960 ('The Builder' of October 21) the names of 18 architects resident overseas were removed from the register on January 2 for failure to pay their 1960 retention fees. The committee recommended that five other architects, previously removed as defaulters, be reinstated. A perusal of the register and the table of changes for 1960 shows that there were 671 new admissions, 109 reinstatements, 207 deaths, 248 resignations, and 117 removals. The number on the register at December 31 last was 19,436.

Typography of Council's Documents

To implement the Council's decision of June 8, 1960 ('The Builder' of June 17) a sub-committee has selected Mr. Larry Carter, lecturer at the Royal College of Art, who submitted the best of five sets of specimens, for recommendation to the appointment as the Council's typographer. The appointment was unanimously approved. The estimated cost of redesigning all the Council's documents and adapting them to 'A' sizes is approximately 317 guineas; but it has been left to the sub-committee to select the documents to be included.

The professional purposes committee, whose report was submitted by its chairman, Mr. L. A. Chackett, FRIBA, FRICS, had considered a letter from a firm of solicitors acting on behalf of a large firm of builders and civil engineering contractors. The builders had been employed in the preparation of a site; they had asked the architects for the buildings to be erected on that site to include their name in the list of firms to be invited to tender for the foundation contract. The architects refused their request on the grounds that the contractors were in the practice of offering 'package deal contracts.' The contractors wished to know whether the Council agreed with this policy.

The committee reported that they had authorised the Registrar to reply that it was outside the competence of the Council to express any official view on the reasons given by the architect for including or excluding the name of a particular firm from his selected list of contractors.

Annual Meeting

At the twenty-ninth annual meeting which followed the ordinary meeting Mr. A. G. Sheppard Fidler, MA, FRIBA, was re-elected chairman, and Mr. Cecil Kennard, OBE, FRIBA, vice-chairman for the forthcoming year. New appointments to the Council were Mr. Herbert Jackson, FRIBA, and Mr. G. A. Rowe, ARIBA (appointed by the RIBA); Mr. H. T. Cadbury-Brown, FRIBA, and Mr. L. Manasseh, ARIBA (appointed by the AA); Mr. J. E. L. Caldwell, FRIBA (provincial associations); and Mr. F. J. H. Brackett, MBE, FRICS (RICS).

The Survey of London

Celebrating the 60th Anniversary

SURVEY OF LONDON. Volumes XXIX and XXX. The Parish of St. James, Westminster. Part one: South of Piccadilly. Published for the London County Council by the Athlone Press, University of London. Price 8 guineas.

TO MARK the sixtieth anniversary of the publication in 1900 of the first volume of the parish series of The Survey of London, the London County Council has issued two handsome volumes dealing with the court suburb of post-Restoration London —the St. James's-square, Pall Mall and St. James's-street quarter — founded mainly by Henry Jermyn, Earl of St. Albans (c. 1604-84), an area rightly described as 'unsurpassed in architectural splendour by any other part of London.' The area covered by these volumes extends from the Green Park on the west (excluding, owing to a peculiarity of the parish boundary, the upper part of the west side of St. James's-street), to the west side of Haymarket on the east, and from the south side of Piccadilly on the north to the south side of Pall Mall on the south, excluding St. James's Palace and Carlton House Terrace.

French Influence Possible

The Earl of St. Albans was granted a thirty-year lease of the bailiwick in 1661 (afterwards extended) and it was he who was responsible for the greater part of the street pattern east of St. James's-street. For the type of layout adopted there were already the precedents in London of Covent Garden and Lincoln's Inn Fields, but in view of the Earl's long residence in France during the Commonwealth he may well have been influenced by the town-planning developments he saw there. He conceived St. James's-square and its surrounding streets as an aristocratic residential *enclave*, with a market attached to its eastern side. Blome's map of the parish in 1689 shows the inward-looking character of the layout, with, for the most part, only exiguous road connections with the outside world, a street pattern which, except for the creation by Nash of Lower Regent-street and Waterloo Place and some minor road extensions, remains virtually unaltered.

Most of the original houses were built and disposed of on the same speculative basis as elsewhere in London, but many sites were afterwards acquired by wealthy noblemen and others, who erected great mansions from the designs of their own architects. Little of the earliest domestic work is visible externally today, and on most of the sites, many of which now belong to the Crown, the existing structure is a third or fourth building. Among the oldest buildings are Wren's fine church of St. James, begun in 1676 and restored a few years ago by Sir Albert Richardson after serious bombing, and the restored façade of Schomberg House (1698), in Pall Mall, which has been lately reconstructed as an office building from the designs of Messrs C. H. Elsom and Partners.

Although many historic buildings of greater or lesser importance have disappeared, including Carlton House (Holland, 1787), Buckingham House, Pall Mall (Soane, 1792-5), Cumberland House, Pall Mall (Matthew Brettingham Senior, 1761-3), Norfolk House, St. James's Square (Brettingham, Senior, 1748-52), the Opera House in Haymarket (Vanbrugh, Novosielski, Nash and Repton—the latter's Royal Opera Arcade fortunately still surviving), and more recently the Museum of Practical Geology (Pennethorne, 1846-9), and the St. James's Theatre (Beazley, 1835), many fine houses remain, especially in St. James's Square, notably No. 4, now occupied by the Arts Council (architect unknown), No. 15 (Stuart and Wyatt), No. 20 (Robert Adam), and No. 32 (S. P. and C. R. Cockerell); while St. James's Street, although much rebuilt in the 'Free Classic' manner of the early years of this century, still retains such fine eighteenth-century buildings as White's and Boodle's Clubs, and such simple but pleasing façades as those of Lock's hat shop and Berry Bros. and Rudd's, the wine merchants.

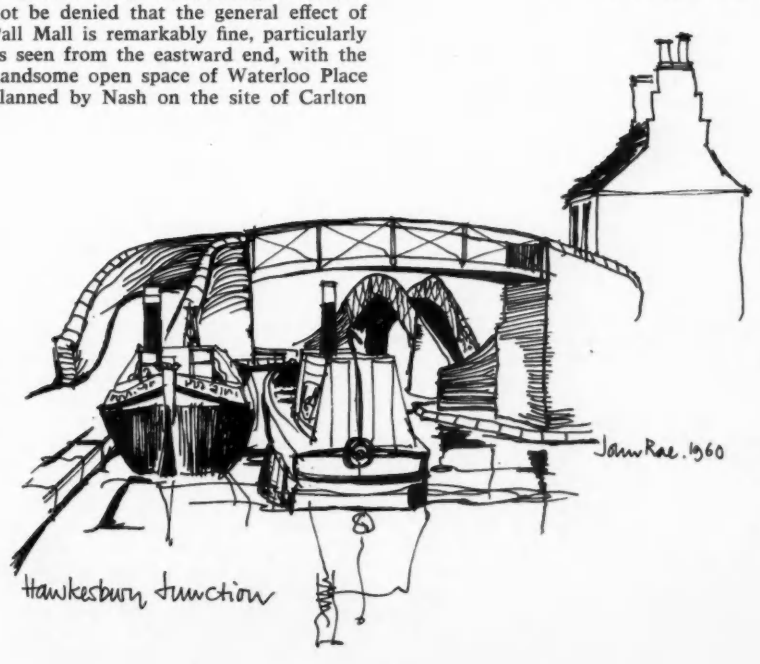
'The finest street in London—not a false note in it,' said E. A. Rickards, speaking of Pall Mall many years ago. The latter part of the judgment was, of course, an exaggeration. The Junior Naval and Military Club (1874-5), which then stood near Marlborough gate (it was replaced by a dignified commercial building by Lutyens in the early 'thirties), was a brutal piece of work, while the gabled and turreted example of romanticism by Norman Shaw on the corner of Pall Mall and St. James's-street is an obvious interloper in this classical setting. There are some other minor declensions, but it cannot be denied that the general effect of Pall Mall is remarkably fine, particularly as seen from the eastward end, with the handsome open space of Waterloo Place planned by Nash on the site of Carlton House and St. James's Market, and its great succession of palatial club-houses—the United Service (Nash and Burton), the Athenaeum (Burton), the Travellers' and the Reform (Barry), the Oxford and Cambridge University (the Smirkes), the Army and Navy (Parnell and Smith), the Junior Carlton (Brandon), the Royal Automobile (Mewès and Davis), and others, a parade of classical buildings that is appropriately terminated on the far side of St. James's-street by Barry's Bridgwater House and Vardy's Spencer House, overlooking the Green Park. And besides the magnificence there is the agreeable diversification of such informal and picturesque backwaters as Blue Ball Yard, Pickering Place, and Carlton Mews.

'This Splendid Area'

The history of this splendid area of the West End of London is fully and interestingly recorded in these fine volumes. The architectural descriptions are particularly well done. Each volume has a coloured frontispiece and, in addition to numerous line illustrations in the text of each, the second volume includes no fewer than 277 plates showing historical maps of the area and plans, prints and photographs of buildings, exteriors and interiors, existing and demolished, all finely reproduced in half-tone on art paper. There is also a plan pocket containing an up-to-date map of the area with the 139 buildings recorded marked in red, as well as three folding sheets of comparative elevations in Pall Mall, St. James's-square and St. James's-street. There is a very useful index.

The general editor, Mr. F. H. W. Sheppard, his band of helpers, the London County Council, the printers and all others concerned are to be warmly congratulated on the production of these splendid volumes.

G. J. HOWLING.



Purpose and Organisation of Development Groups

Mr. Walters's Introductory Paper to RIBA Discussion Meeting

Following is the text of an Introductory Paper prepared by Mr. Roger Walters, ARIBA, AMIStructE, for discussion at the Royal Institute of British Architects, 66 Portland-place, W1, on Tuesday next, March 21, at 6.30 p.m.

WE ARE MEETING THIS EVENING to discuss the purpose and organisation of development groups. Faced with the job of preparing a short introductory paper, I first thought of dividing it into three parts. The first part would tell the story of how development groups came into being; the second would briefly describe the development groups as they now exist; and in the third part I would try to analyse the concept, to identify the characteristics which give the words 'development group' the special meaning which they have today.

But this paper is only intended to open the discussion. To have included so much material would have made it far too long, and so I decided to abandon the first two parts altogether. The story of how development groups came into being still needs to be written. It is a fascinating story of people and ideas, and of imagination and courage. As a piece of modern architectural history it would make a promising subject for a post-graduate thesis, or even for our professional historians, who nowadays are so close on our heels. I hope someone may soon decide to undertake it.

Survey of Development Groups

The second thing which I thought of doing—to describe the development groups as they now are—has, I'm glad to say, been done already. I would like to draw your attention to a new book called 'Building by Local Authorities,' which is about to be published. The author is Elizabeth Layton. Her book is the comprehensive report of an inquiry initiated by the Royal Institute of Public Administration and carried out with the help of a grant from the Nuffield Foundation. It will be of great interest and value to anyone who is concerned with the public sector of building. In one of the chapters Mrs. Layton deals with 'Research and Development,' and I would like to commend this to you as a concise and thoughtful survey of the development groups as they now exist in this country.

Perhaps it will be helpful if I simply say where these development groups are: in the central government advisory departments there are development groups in Ministries of Education, Health, Housing and Local Government and the Department of Health for Scotland, and there is one working with the University Grants Committee; in the central government spending departments (those which carry out their own building programmes) there are development groups in the War Office and in the Ministry of Works; there is a development group in the Housing Division of the Architects' department of the London County Council; and, in somewhat different but related categories, there is the CLASP consortium of local authorities and there was, until recently, a Division of Architectural Studies under the Nuffield Foundation. If we omit the CLASP consortium and the Nuffield Foundation, there are at present development groups in seven central government departments and in one local authority. It is true that development *work* is going on in a number of other organisations, but we are concerned this evening with development *groups*, groups which have a recognisable purpose and organisation of their own.

With those brief comments, I will leave the history of development groups, and their present distribution, and turn to what I hope will be the central topic of the discussion this evening. That is, to establish, if we can, what are the essential ingredients of a development group. I believe this topic to be of some importance. Now that the success of the Ministry of Education's development group has been fully appreciated, the idea has become almost fashionable. To some authorities, who are worried about the quality of design and the value for money which they are obtaining in their buildings, to set up a development group might appear to be a heaven-sent and simple solution. But it is not a simple matter to create and run an effective development group. Half-hearted attempts to do so are bound to produce disappointing results and could bring the whole concept into disrepute. We must do what we can to prevent this happening, and I would like now to give you my own views on the characteristics which should be present in a development group if it is to operate successfully.

I will divide these characteristics under three headings: first, those of the parent organisation to which the group belongs; second, those which govern the purpose of the group itself; and third, those which determine the way in which the group is organised.

The Parent Organisation

The parent organisation should be one which is financially responsible for a large volume of building work. I say 'financially' responsible because the organisation need not necessarily carry out the work itself, but it should be in a position to control it. The buildings need not be all of the same type, and they need not be all new work—the requirements may include the alteration and modernisation of existing buildings. The important thing is that there should be an assured future demand for building, extending at least five years ahead, and preferably much further. The parent organisation, whatever other characteristics it may have, should be a client and one which is resolved to commission buildings of known types, in approximately known numbers, within an approximately known number of years. This future demand should be recognised administratively, at the very top, and preferably made public, and the work of the development group should be directly related to it.

I would not call this statement of future demand a programme. A programme is something else. It is a firm list showing how many buildings, of which type, and on which sites, are going to be started, in which year. For the sake of those who design and erect the individual buildings, a programme is essential and should be firm for at least three years ahead. But for the development group a much longer forward look is needed. It need not be so precise, as long as it indicates the degree of repetition of similar types of buildings, and as long as it represents in an approximate form the firm intentions of the client.

Professional Responsibility

The parent organisation should have two other characteristics. From the outset it should be prepared to give its development group full support. The leader of the group should be made directly responsible to the top professional man in the organisation. This may need some major adjustments in structure, perhaps even a complete rethink about the professional side of the organisation. For this reason it may be easier to set up a development group in an advisory department than it is in a spending department with a large professional staff. When the leader of the group has been chosen, and I think he must be an architect, he should be allowed to offer attractive salaries and working conditions. He will find it difficult enough to locate people with the right attitude of mind and he should not be inhibited in recruiting them by other kinds of restriction.

And finally, the parent organisation should be prepared in advance to adopt the results of the group's work. I know this sounds a tall order, but I am assuming that the group will produce results which are viable in the political, economic and technical contexts of its parent organisation. If it fails to do so, it will be wasting its time. The onus on the parent organisation is to express its confidence in the group by stating its intention to communicate the group's findings as soon as they are available and to apply them as widely as possible. This climate of confidence may depend as much as anything on the personalities of those who head the parent organisation and the development group, and the degree of mutual respect and understanding between them. But it should also be encouraged by placing the group within the organisation so that its formal relationships are satisfactory from the beginning.

The purpose of a development group is to achieve better design and better value for money. This is also the purpose of

the designers of an individual building. But their circumstances are different. The designers of an individual building seek to understand the needs of an individual client and to satisfy them by constructing a particular building on a particular site. For both the client and the designers it is the first and last attempt to get it right. A development group seeks to understand the activities of a large number of users collectively, and to get as near as it can to satisfying those needs by constructing examples, knowing that more buildings are to follow, and aiming to make each one better than the last. The search is not for immediate perfection, but for continued improvement.

A development group should regard the building process as indivisible. By this I mean that it should be consciously concerned with all its aspects; with the study of human needs; with finding ways of satisfying those needs; with building technology; with cost; and with building management. And in each case its concern is with the future; with the future demand for buildings of its parent organisation, and with the long period of time, probably at least 60 years, during which the buildings will be occupied.

Identity with Parent Organisation

What are the implications of this? First, that the group should seek to acquire a deep understanding of the nature of human activities with which it is concerned, not only as they are now, but as they are likely to change in the future. It should seek to identify itself with the aspirations of its parent organisation, to perceive the significant trends, and to suggest ways of planning buildings which will allow these trends to develop freely. This applies not only to layout but to every detail of equipment and furnishing.

Similarly, in its study of building techniques, the group should evolve methods which are appropriate not merely to the construction of one building, but to the efficient execution of a large number, carried out in a planned sequence. And while it must be aware of the limitations of the building industry as it is now, it should be sensitive to future development and should be ready to pioneer in the field of building technology.

In its study of cost, the group should again aim to identify itself with its parent organisation. It should try to work out ways of estimating and controlling expenditure which will simplify the work of its administrators and, at the same time, give the designers of the individual buildings the opportunity to use their professional skill to the best advantage.

And in its study of building management, which means the way in which all the members of the building team, including the user, work together, the group should seek to make the whole process more predictable. Thinking ahead, relating the job to be done to the effort available, getting the right people in the right relationship to one another, letting them know in plenty of time what they have to do, possibly keeping the team together for more than one job. There are possibilities in a large building programme for improving these things, such as do not exist when you are designing an individual building, and a development group should seek to show how advantage may be taken.

Inevitably, when you think about it, a development group must build. The indivisible nature of the studies I have just outlined only becomes a real thing when they are focused on to an actual building project. Any group of designers learns best by trying out its ideas in practice. It is much more effective for those who set out to advise others to do so by example rather than precept. And, in any case, how can you get intelligent and forward looking architects unless you involve them in real building? The projects which the group builds are best chosen from among the requirements of its parent organisation. If it is a spending department, from its own programme of building; if it is an advisory department, from the programme of one of its regional or local authorities.

There is one more purpose of a development group which I regard as essential, namely that it should communicate. This may sound obvious, but as a profession we are so little used to passing on our knowledge and experience to others, that it requires special emphasis. I suggested earlier that the parent organisation should be prepared in advance to adopt the recommendations of its development group. But the parent organisation can only do so if the group succeeds in communicating its results and ideas effectively, and the parent organisation, in turn, can only pass on these ideas to others if the development group helps it to do so. Effective communication can be time consuming, exacting, even tedious, and it is therefore as well to recognise its special importance in the work of a development group.

Points of Organisation

When you come to organise a development group you have to translate the essential characteristics of its purpose into means of achievement. I think it would be wrong to try to define the organisation of a group precisely—to say that it should always be arranged in such and such a way. But it seems to me that there are certain points of organisation which must be observed if the group is to work successfully.

The first point is to ensure that policy, design and price go together. In other words the group should have three kinds of people in it: administrators, architects and quantity surveyors. They should be so related to each other that decisions about policy, design and price can be taken jointly, and not separately in time and place.

To discuss the administrators first, I said earlier that I think the leader of the group should be an architect. I also think he should be closely associated with an administrative opposite number who is on the same level as himself. Whether these two should be made jointly responsible for the group is a matter of debate. Both the Ministry of Education and War Office think they should, and find that the arrangement works well in practice. But whether they are formally made jointly responsible or not, what matters is that neither the professionals nor the administrators in the group should control the others; policy should be made by them jointly, working together in partnership, at all levels from the top down. Intelligent and imaginative administrators can make a vital and positive contribution to the work of a development group. They can keep the group continually in touch with the climate of policy in the parent organisation, and they can relieve the professionals of much administrative work which would otherwise occupy their time. This distinction I am making, between professionals and administrators, should not obscure the fact that the administrators in the Civil Service are themselves professional people with a code of intellectual integrity which is of the highest order.

The architects in a development group may come from different schools and from different post-graduate experience, provided that they are intelligent and that they all share a basically similar attitude of mind. They should, I think, care more about architecture as a social service than as a means of personal expression. Their approach should be more rational than intuitive, but not to extremes.

Ideally, they should be sceptical and optimistic at the same time, so that they always question the way in which a question is posed and the conventional solution which is offered to it. They should be architects who will ask the user not what he wants, but what he wants to do, and how often he wants to do it; who believe that there is always a better answer to be found, even though the best known solution is one they thought of themselves; who can be imaginative and logical, enthusiastic and patient, individual and good team members, all at the same time. It is asking a great deal, and yet I believe our profession is rich in younger architects, who have not yet found the conditions in which they can do their best work, and who could meet such a challenge.

Quantity Surveyors 'Full Partners'

The quantity surveyors should be full and equal partners with the architects and administrators, either as permanent members of the group, or seconded to it. They should be able to act as cost consultants at all stages of the development project, so that the disciplines of money are not extraneous, but become an integral part of the group's thinking. In cost planning, contract letting and financial control, there should be opportunities for quantity surveyors to develop new ideas and methods in their own professional field.

While these three kinds of staff, the architect, the quantity surveyor and the administrator, are essential to its working a development group will certainly need to engage other skills. In the study of human needs it may seek the assistance of psychology, physiology, sociology, ergonomics, statistics, and of professional experience in medicine, teaching or whatever is appropriate to the activities under study. Such skills may be found within

the parent organisation, or by contacts with universities and research organisations, or by special arrangements such as the secondment of HM Inspectors of Schools to the development group in the Ministry of Education. In the study of building technology, the group may need the assistance of civil, structural, mechanical, electrical or other kinds of engineers, and these may be professional consultants, either inside or outside the parent organisation, or in industry. The group should look closely at its relations with the Building Research Station, not only for the direct help the BRS can give, but because development groups are one of the means of helping to close the gap between basic research and its application in practice. And before we leave relationships with other organisations, I think the group should at least consider entering into some form of liaison with one or two of the more progressive schools of architecture.

Settling the Size of a Group

There are no specific rules that I can discover for fixing the size of a development group. It should be large enough to build experimental projects as vehicles for studying the human needs with which its parent organisation is concerned. It should be small enough for the group to share its attitude of mind and to acquire a real identity of purpose. One way of assessing how many people are needed is to think in terms of a number of development teams each responsible for a development project. It helps to think of a development project going through five stages. The first is the investigation stage during which the users' needs are studied in great detail and which ends with the preparation of the brief, the first tentative sketch layouts and the first approximate cost plan. In parallel with this stage goes the development of building technique. The design stage follows, during which the plans crystallise and each element of the building is designed in detail and costed. The production stage is the preparation of working drawings and the bill of quantities, in other words, communications with the builder. The fourth stage includes letting the contract and the site erection period. And the last stage is writing up the results.

A development team should be allowed at least twice as much time during the investigation, design and production stages as would be required for an ordinary scheme of equivalent size. If they can be given more, so much the better. And, in addition to the time required for the five stages which I have mentioned, allowance should be made for any background studies which may be needed to ensure that work on a particular project is seen correctly in its wider context. Each development team will generally start small and reach its maximum size during the production stage. If there are, say, three development teams in the group, it should be possible to phase their projects so that the total load on the group remains fairly constant.

If the development group is part of an advisory department, it may be necessary to fix the size of the staff for establishment purposes and to obtain as much flexibility at possible within that size. But if the group is in a spending department, it may be possible to keep the permanent staff of the group small and to make up the development teams by secondment from the production branches of the office. This method is being tried in the War Office. It not only offers greater flexibility in numbers, but it counteracts any tendency for the development group to become isolated from the rest of the office.

There are two other points I would like to make about the organisation of a development group which is part of a spending department. One is that the development group should never be merged with the production side of the office. The development group works in different circumstances and to a different time scale to those engaged in programme work. The development teams can make a contribution to output—as we have seen this may approach 50 per cent of the output of the production teams. But if, under pressure of work, the functions of development and production become confused, the development group will lose its ability to break really new ground.

The other point about a development group in a spending department is that it can contribute to more than the design of new buildings. If I may mention the War Office again, the development group is being organised to help the office as a whole with internal procedures and building management and with relationships with outside consultants, to provide a home for services such as the landscapes section and the technical library, and to include a team responsible for inspection and development in the field of maintenance.

Conclusion

Having described what seem to me to be the essential requirements of an effective development group, I would like to end where I began, with the parent organisation.

As you will have gathered, I am very much in favour of development groups. I believe they are one of the best means we have yet found of harnessing creative energy to the problems of building. But the future of development groups depends on the ability of large client organisations to plan their forward demands. This is the first essential on which everything else depends.

It is not easy to look ahead when large sums of capital investment are involved. It requires political courage. But the rewards of this kind of political courage are high indeed. The client department itself is the first to benefit, because it can obtain better value for money and, consequently, can do more of the things that it wants to do. Those who occupy the buildings benefit, because designers who have had time to understand their needs deeply, instead of superficially, can provide them with environments which are more efficient and more flexible in use. And the users of the buildings are more likely to experience that sense of freedom and delight which is the special gift of architecture. And these benefits are not all, because forward planning enables the building industry as a whole to look ahead, and consequently to become more efficient, and consequently to make a greater contribution to the prosperity of the country.

About half our building is controlled by central government departments, local authorities and the nationalised industries. Much has already been done in this public sector and, while we are discussing development groups this evening, let us pay tribute to all those who have shown us what is possible. But let us also determine to encourage this trend towards planning ahead, and to learn how to do it more effectively and on a bigger scale. For it is one of the most effective ways in which politicians, administrators and all branches of the building industry can work together for the good of society.

Birmingham and Five Counties AA

Issue of Current 'Green Book'

THE ELECTION of Mr. Alfred H. Gardner, FRIBA, as president of the Birmingham and Five Counties Architectural Association is a landmark in the growth of the Coventry Chapter, of which he is the first member to achieve this distinction. The remarkably well-produced 'Green Book' of the 86th session is notable for the diversity of its coverage. Apart from the annual report and a note from the chairman of the Coventry Society of Architects, there are some useful technical descriptions of recently completed Midlands churches, each of which is illustrated. Lecture notes from the 1959-60 session include precis of three current schemes in the rebuilding of Birmingham by the city architect, Mr. A. G. Sheppard Fidler, MA, FRIBA. There is a short report of a debate held in February of 1960 when a motion that 'a two-tier profession is boloney,' proposed by Mr. Gardner, was forcefully argued with Mr. Arthur Ling, FRIBA, the Coventry city architect, leading the opposition. Mr. Gardner backed up his criticism that scholastic achievements did not necessarily produce architects, by suggesting that whereas Christopher Wren would have gained entry to the profession today, Inigo Jones would probably have failed his examinations.

Two interesting points from the report from the chairman of the Coventry Society of Architects are the establishment of a junior members committee, and news that the framework of the programme is now emerging for the RIBA Conference which is to be held at Coventry in June, 1962. The work of the RIBA Conference Committee under the chairmanship of Mr. Gardner will grow with increasing intensity for the next fifteen months.

The Week in Parliament

From Our Own Correspondent

The Covent Garden Market Bill

THE AREA into which the future Covent Garden market is to be concentrated and a time limit in which the market authority should achieve this, are to be written into the Covent Garden Market Bill.

The Select Committee of MPs which has been considering four petitions lodged against the legislation announced, on March 7, that it had accepted an amendment suggested by the Westminster City Council which would limit the market to 10 acres within a period of seven years from vesting day. Its decision thus rejected a last-minute plea by MR. HUGH FORBES, representing the Covent Garden Tenants' Association, that neither the area nor the time limit should be specified.

Mr. Forbes said the Tenants' Association thought it might well be possible to produce within six or seven acres a building which would house all the market activities which ought to be carried on in the Covent Garden market. No one had carried out an architectural survey on the precise area that would be required and how the building could be put up. No one was working out anything of this kind yet, and in those circumstances the Association felt strongly that it was putting the cart before the horse to put in a definite figure of six acres or any other figure without the necessary architectural work having been done. A time limit was even more nebulous.

The Select Committee also announced that it accepted the petition by the boroughs of Finsbury and Shoreditch which had opposed the siting of the proposed market annexe at the St. Luke's site by the junction of Old-street and City-road, Finsbury. The boroughs had considered that this site was 'totally inappropriate.'

City of London Petition

There was also a petition by the Corporation of the City of London and suggested amendments by it sought to limit what the Corporation contended were 'astonishing, wide and unnecessary powers' which, among other things, it contended, would usurp planning functions. But the Select Committee did not accept these amendments. The City Corporation was successful on only one amendment and the Tenants' Association succeeded on some of its points.

The opposition to the siting of the annexe at Finsbury was on traffic grounds and the Select Committee had had the benefit of the opinion of the Commissioner of the Metropolitan Police who cast an unfavourable eye on the site. Called as a neutral witness, MR. JOHN WALDRON, assistant commissioner in charge of traffic and transport, referred to the already congested conditions at peak hours and how a significant movement of traffic between the annexe and Covent Garden would be generated.

During the hearing, the future usage of the 34-acre site of the former live cattle market at Islington was commented upon by MR. GEOFFREY LAWRENCE, QC, when he presented the case for the City of London Corporation's petition.

He explained that more than half of the site was occupied by an abattoir and allied trades which the City Corporation was under a statutory duty to maintain. The LCC, he said, wanted the site for housing and it followed that if that project was to become a reality, an alternative site had to be found for the abattoir. It would be possible to put a fruit and vegetable market or storage depot at Islington next to the abattoir. The City had all along been doing its best to try to secure that the Islington site was put to some useful uses in the context of Covent Garden, but at every stage it had run into strong opposition from the LCC and had had little support from the Minister of Agriculture.

Agreement with LCC

The City Corporation had now come to an agreement with the LCC that if a new site for the abattoir and allied trades could be found on a site over some sidings and coal yards at Maiden Lane, not far away from the Islington market site, and satisfactory financial terms could be agreed, the Corporation would be prepared to hand over the whole of the Islington site to the LCC. Negotiations were still in progress.

The British Transport Commission had been induced to agree to the feasibility of resiting the abattoir over the sidings at Maiden Lane and the City Corporation took the view, founded on expert surveyors' opinions, that if the Maiden Lane site was made available there might well be room in addition for a full horticultural depot as well, for bulk produce and empty containers. The Corporation had that possibility in mind as an alternative to the Finsbury site (where the Bill proposes that the annexe to the market should be built) as the Corporation had never thought the Finsbury site suitable. Indeed, it was a hopeless proposition. There was a strong possibility that the solution could be found over these sidings.

Mr. Lawrence maintained that the new market authority was being endowed with astonishing, wide and unnecessary powers and that it would be enabled to usurp the proper functions of the planning authority in London. On vesting day the authority would have on its hands an extremely valuable site in central London and he considered its powers would enable it to enter into the property development world either by itself or in conjunction with others. There should be provisions in the Bill to prevent a market growing up around the annexe.

The 'prohibited area' around Covent Garden had been defined by a circle which was utterly arbitrary and silly for the purpose. It should have followed street lines as had been done with the Covent Garden Area. The City objected to part of its areas being in this prohibited area. After all the City Corporation was a market authority.

MR. PERCY LOVELY, chairman of Spitalfields Market Committee, said it was in the last six months that advice had been given about the Maiden Lane site. MR. HAROLD WILLIS, QC, for the Government, said the City Corporation should have written to the Ministry about it. Was it still in the melting pot? Was the matter still doubtful? MR. LOVELY said he thought the arrangement had gone past that. He thought it had been definitely offered to them for the abattoir. MR. WILLIS asked if it was being suggested that the new authority would in all these matters behave in a way that the City had not done. MR. LOVELY said he would not imagine so but he did not see why the authority should be given powers to enable it to do so.

Oil Pipelines

AMONG THE PROJECTS which have been prepared for future development if Parliament approves the Trunk Pipelines Bill, a private measure, is a new deep water channel to be built in the sea north of Margate where large tankers could discharge oil for conveyance by pipelines to Thames-side refineries.

Information on this proposal was published by the promoters of the Bill, Trunk Pipelines Ltd., on March 7, the same day as MR. RICHARD WOOD, Minister of Power, announced in the Commons that the Government had decided to introduce legislation to secure, in the national interest, the orderly development of privately-owned pipelines. The Government will be having consultations with various interests affected by their legislative proposals and it is probable that the Bill will be introduced in the next session, which is likely to be towards the end of October. The Bill seeks approval for the construction of a 70-mile pipeline from Canvey Island in the Thames to the Grand Union Canal at Denham, with branch lines leading to distribution points at Fulham and near London Airport. Fifteen local authorities, including the LCC, have lodged objections to the Bill. The company have indicated that they have plans to extend the pipeline later from Denham to Birmingham and Merseyside. The preparation of the ocean terminal and pipeline along the sea-bed is being carried out by Queen's Channel Terminals Ltd., a company working in association with Trunk Pipelines Ltd.

The Esso Petroleum Bill, which embodies a pipeline project, received the Royal Assent on March 2.

Other Business

New Stoke-on-Trent Post Office

MISS PIKE, Assistant Postmaster-General, said on February 15 that the new Post Office building to be built at Stoke-on-Trent would comprise a public office, a sorting office and a postal garage and workshop. The scheme had now been agreed with the local authority and the BTC. She expected work to start by the end of 1961 and to be completed by the late autumn of 1963.

Tenders for Prestwick Airport

MR. WILLIAM ROSS asked the Minister of Aviation on March 6, for a statement on the progress of the new terminal building developments at Prestwick Airport.

MR. THORNEYCROFT: 'Work on the first phase of the terminal apron started on February 9. On present planning tenders will be invited for the first contract for the terminal building in April with a view to starting work in June.'

Interior Design in Hospitals

MR. FRANCIS NOEL-BAKER asked the Minister of Health on March 6, if he would draw the attention of regional hospital boards to the desirability of achieving a high standard of interior design in hospitals and of employing professional consultant interior designers; to what extent professional advice was now sought on these matters; and how far his department and regional hospital boards now used the facilities and resources of the Council of Industrial Design.

MR. ENOCH POWELL: 'My department is in touch with the Council of Industrial Design and hospital authorities are making increasing use of its facilities and of professional advice on interior design. I am satisfied that boards appreciate the importance of a high standard in this respect.'

Brick Supplies

MR. RAYMOND GOWER asked the Minister of Works on March 7, in what parts of the United Kingdom there were still shortages of bricks.

LORD JOHN HOPE: 'Delivery periods for certain types of bricks are still longer than I could wish but there has been a small increase in bricks in stock since the beginning of the year and I have no evidence of any work being held up.'

SIR JOHN MAITLAND asked the Minister of Works on March 7, what progress was being made in dealing with the shortage of bricks in the east Midlands area.

LORD JOHN HOPE wrote: 'Capacity for brick production in the east Midlands area has recently been increased by the opening of new kilns. Production rose in 1960 and there should be a larger increase this year. I have had no requests for help from this area in recent months.'

Grants for Welsh Museums

MRS. EIRENE WHITE asked the Minister of Housing and Local Government on March 7 what additional grants were to be made available for extensions to the National Library of Wales, the National Museum of Wales and the Welsh Folk Museum.

MR. HENRY BROOKE wrote: 'I am glad to be able to announce that the Government have decided to make an Exchequer contribution of the order of 90 per cent. of the approved cost of the two Welsh building projects recommended by the Standing Commission on Museums and Galleries as deserving priority. These are the West Wing of the National Museum at Cardiff, estimated to cost £350,000, and the completion of the first bookstack at the National Library at Aberystwyth estimated to cost £200,000. Sums have been included in the grants in aid of the Museum and the Library in 1961/62 to enable a start to be made on these projects during the year.

'The Commission did not attach as high a priority to the extension of the Welsh Folk Museum, and thus the Government feel it right to put the other two projects first.'

Glen Nevis Hydro-electric Scheme

No final decision to proceed with the £4.2m. hydro-electric scheme at Glen Nevis will be made until a report by a new departmental committee has been received and published, said MR. JOHN MACLAY, Secretary of State for Scotland, in the Commons on March 7.

He announced that Mr. C. H. Mackenzie, a former chairman of the Scottish Committee of the Federation of British Industries, had agreed to be chairman of a committee to review the arrangements for generating and distributing electricity in Scotland. Meanwhile no further hydro-electric schemes would be allowed to proceed until the review was completed. The review will have special reference to the relative costs of water-powered and thermal generating stations.

Wolfenden Report on Sport

Unlike the House of Lords, the House of Commons have so far been unable to find time to debate the Wolfenden Report on Sport and the Community but motions have been tabled by Conservative and Labour MPs to indicate their attitudes on the need for more sports facilities.

The Conservative motion urges the Government to begin discussions with local Government organisations with a view to achieving the objectives of the report and so to shape policy as to encourage the voluntary development of facilities for sport. An amendment seeks to add 'providing that the Government ensure by an overall reduction in national expenditure that the achievement of this policy does not add to the national burden of taxation.'

The Labour motion urges the Government to set up a sports development council and to implement the report and consider the suggestions made in two other reports.

Employment Projects

MR. NIALL MACPHERSON, Parliamentary Secretary, Board of Trade, said on March 7 that about 150 projects had been approved in Northumberland and Durham and the North Riding of Yorkshire since the Local Employment Act.

Unlit Motorways

MR. ERNEST MARPLES, Minister of Transport, said on March 8 that he saw little practical advantage in having a pilot lighting scheme on a motorway since it was not his intention to light rural motorways while heavily trafficked, all-purpose roads, where hazards were greater, remained unlighted.

Mr. Ernest Marples indicated on March 8 that he had not received a proposal from the LCC for a £260m. ring road in London. But he told MPs that one of the purposes of the proposed London traffic survey was to enable schemes like this to be evaluated.

Schools Under Construction

MR. STEPHEN SWINGLER asked the Minister of Education on March 9 to state the numbers of new primary and secondary schools under construction at the latest date for which figures were available; and how these figures compared with those for 12 months, five years and 10 years ago, respectively.

SIR DAVID ECCLES: 'Taking primary and secondary schools together, the answer is: 503, 497, 852 and 930.'

But he added that since these figures were of little value unless broken down as between primary and secondary schools, and compared with the number of schools completed, he was issuing the following table:—

	Schools under Construction			Schools Completed		
	Primary	Secondary	Total	Primary	Secondary	Total
1960	244	259	503	225	187	412
1959	195	302	497	217	273	490
1955	335	517	852	284	147	431
1950	717	213	930	205	49	254

A Builder Takes a Bow

Firm's Achievements at Home and Overseas

TURNING BACK THE PAGES of their house magazine, 'Team Spirit,' John Laing and Son Ltd., have produced a filmed review of the important construction projects undertaken by the company and its subsidiaries during the past ten years. The film, 'Taking Stock,' deals with the company's substantial contribution to the post-war housing drive, a succession of schools, colleges, industrial buildings, power stations, research establishments, office buildings, and major civil engineering works, illustrating the remarkable diversity of activity throughout this period. Contrast is heightened by such dissimilar undertakings as the new Coventry Cathedral, due for completion next year, and the largest road construction project ever carried out by one firm in this country—the M1. Overseas projects include the Kariba Dam, the second Narrows Bridge and the Annacis Industrial Estate in British Columbia, and other substantial works in Malta, Syria and many parts of Africa.

The magnitude of this company's achievements is surely without parallel, at least in Europe, and all concerned may justifiably be pleased with having played their part, especially in the underdeveloped countries. By means of advance planning, work study, intensive mechanisation and off-site preparation, reinforced by competent management, the tempo of construction work has been maintained at an increasingly high rate. A number of widely used constructional systems have been developed at the company's Research and Development Centre at Boreham Wood.

Educational Building

Revised Limits of Cost

THE MINISTER OF HOUSING AND LOCAL GOVERNMENT has reviewed the limits of cost for new schools and other educational buildings in the light of the recent agreement on a new wages structure for the building industry, and of the trend of building costs generally. He has decided that increases are necessary if authorities are to maintain a reasonable standard of building and avoid excessive future maintenance costs. The new limits of cost (set out below) will apply until further notice to projects finally approved on or after March 1.

The revised limits allow for the full effect of the new wages structure in the building industry, and will not be further increased when this comes fully into operation on October 1. In the case of primary and secondary schools, they also include an element in respect of a revised scale of recommended kitchen areas which will be available in the near future. The changes in the cost limits will involve consequential increases in the rates of premises grant to be announced soon.

PRIMARY AND SECONDARY SCHOOLS.—Limits of cost should be calculated according to Circular 4/59 of May 26, 1959, and its addendum No. 1, except that until further notice the limits of net cost per place for new schools will be as follows:

	Limit of net cost per place	
	With scullery only	With kitchen
	£	£
Primary schools ...	170	175
Secondary schools ...	305	310

For extension projects (paragraph 15 of Circular 4/59) the appropriate cost per sq. ft. will now be 85s. for all projects.

The cost of projects to remodel existing secondary schools should now be based on a remodelling allowance of 30s. per sq. ft., and paragraphs 6 and 7 of the appendix to the circular letter G847/5/22, dated August 3, 1960, should be amended accordingly.

ALL-AGE DAY SPECIAL SCHOOLS FOR EDUCATIONALLY SUB-NORMAL CHILDREN OF BOTH SEXES.—Until further notice, the limit of net cost per place for schools of this type (paragraph 14 of Circular 4/59) will be £320.

FURTHER EDUCATION PROJECTS. — Until further notice, the appropriate costs per sq. ft. will be as follows: (a) Workshop accommodation—75s. per sq. ft. net. (b) Other accommodation—95s. per sq. ft. net for buildings which contain a complete range of all types of accommodation, and 85s. per sq. ft. net for projects which consist entirely (or almost entirely) of administrative, communal and non-specialist teaching accommodation (e.g. colleges of art or commerce and ad hoc additions to existing buildings). Instalments of projects which, if built as a whole, would qualify for 95s. per sq. ft. will be allowed the higher rate even though they contain solely accommodation of the less expensive type. Authorities will be expected to plan the disposition of cost over the scheme as a whole so as to allocate a higher cost per sq. ft. to the expensive accommodation, and a lower cost per sq. ft. to the less expensive parts of the building, within an overall figure of 95s. per sq. ft.

Paragraphs 104 and 107 of Building Bulletin No. 5 (third edition) should be amended to conform with these costs.

TRAINING COLLEGES FOR TEACHERS.—Until further notice, the appropriate cost per square foot for administrative, communal and teaching accommodation will be 85s. net. For hostels, the figure will be 75s. net both for multi-storeyed buildings designed on the staircase principle and for those designed as two-storey terrace houses. The footnote to paragraph 30 of Building Bulletin No. 15 should be amended accordingly.

HOUSES FOR HEAD TEACHERS, CARETAKERS AND GROUNDSMEN. — When considering requests for an allowance of additional cost exceeding 10 per cent of the normal limit of net cost, the Minister will normally allow £3,200 for a caretaker's or groundsman's house. The allowance for a head teacher's house will be £4,600. In either case, an addition of £150 will be given where a case is made for providing a garage. Paragraph 19(5) of Administrative Memorandum 3/60 should be amended accordingly.

Hospitals Planning

RIBA Course Handbook

THIS* is the first publication of the recently formed RIBA Technical Information Service. The function of the service is to provide architects with information either as comprehensive records of courses, forums or symposia, or as concise notes on management planning and technology for direct application at the drawing-board level. The 'RIBA Hospitals Course Handbook' comes within the former category.

In response to the great interest shown in the RIBA hospitals course held in July, 1960, it was decided to publish this handbook with as many of the papers reproduced in full as possible. There are 22 papers included, together with charts and diagrams, and a bibliography compiled by the Minister of Health specifically for the Course.

The course had the aim of providing architects new to the field of hospital design with background information on many of the complex problems with which they will have to deal. It is hoped that the RIBA Hospitals Course Handbook will further assist not only these architects in their work, but will also be of interest to everyone aware of the changes currently taking place in the health patterns of Britain.

* *RIBA Hospitals Course Handbook:* SfB (94), UDC 725.511(02) A4 format, 112 pp., illustrated. RIBA Technical Information Service. Price 36s. 6d.

Architect's Estate

LT. COL. SYDNEY WHITE CRANFIELD, FRIBA, of Hernhill, Kent, left £61,932 (gross, £62,810) (duty paid, £21,479).

Road Improvements

Analysis of Cost of Schemes

THE EXPENDITURE INCURRED in road improvements in 1958 averaged £1.11 per sq. ft.; it was £1.68 in urban areas and £0.83 in rural districts. These figures, based on recent schemes for classified or trunk roads in England and Wales costing more than £10,000, are given in a Road Research Laboratory Technical Paper, 'An Analysis of the Cost of Road Improvement Schemes,' R. F. F. Dawson (HMSO, price 1s. 9d.), published on March 10. The investigation was based on Ministry of Transport records relating to more than two hundred schemes that were carried out between August and September, 1958, or completed in the previous four months. It related primarily to the building of new roads or the widening or realignment of existing ones.

Land Costs Analysed

It was found that land costs accounted for 20 per cent of the total cost in all urban schemes and for more than 50 per cent in one-eighth of them. For rural schemes the average land cost was 3.5 per cent and in only one-sixth of the schemes did it account for more than 5 per cent. New dual carriageways cost £512,000 per mile in urban areas and £256,000 in rural areas; new single carriageways cost £116,000 per mile in urban areas and £70,000 in rural areas, while the cost of converting single carriageways to dual was £171,000 in urban areas and £84,000 in rural areas. These are average values and cover a wide variation in some of the costs. They are relevant to general studies but not to the evaluation of particular schemes.

The Control of Noise

Conference at the NPL

THE PROBLEM of controlling noise will be discussed by three hundred industrialists, legislators and technical experts at a three-day conference to be held at the National Physical Laboratory, Teddington, starting on June 26. Discussions will cover many aspects of the problem without being too narrowly concentrated on specialist techniques. While most of the delegates will be from Great Britain, there will be a number from Europe and the United States. The conference is being organised by the NPL, the Building Research Station and the National Engineering Laboratory, of the Department of Scientific and Industrial Research.

On June 26 the conference programme will cover a general survey of the problems of noise control, the fundamentals of hearing and measurement; instrumentation; sources of noise in aerodynamic processes; and demonstrations. On June 27 the subject will be noise from gears, engines and fans; vibration insulation; ear protection; reduction of jet engine noise; propagation; insulation and absorption; and problems in factories. The final day, June 28, will be devoted to industrial deafness; audiometry and the assessment of damage risk; effects of noise on performance; amenity problems —aircraft, motor vehicles and buildings; and noise nuisance and legislation. Further information from the Director.

TPI Year Book

THE YEAR BOOK of the Town Planning Institute (1960-61) is now available, price 7s. 6d., from the Institute, at 18 Ashley-place, London, SW1.

Construction Accidents in 1960

London Accident Prevention Group Hear of Heavy Increase

'IN THE LAST SEVEN YEARS one man in ten in the construction industries has been badly hurt, and in the last six years one man in 1,000 has been killed.' These facts were given by MR. PETER THOMAS, Parliamentary Secretary, Ministry of Labour, speaking at the annual dinner of the London Building and Engineering Constructors' Accident Prevention Group in London on March 8. Mr. J. B. White occupied the chair *vice* Mr. G. M. Barker, who was indisposed.

Provisional figures for the industries just released, Mr. Thomas said, painted a 'distressing and melancholy picture.' They showed that there were 20,596 reported accidents—over 2,000 more than in 1959—and that fatalities increased by 65. 'These figures,' he added, 'are higher than ever before, and amply illustrate the point that more can and must be done if this grave problem is to be energetically and successfully tackled.'

Reported accidents in all premises to which the Factories Acts apply totalled more than 190,000 in 1960, an increase of nearly 16,000 over the previous year; fatalities, at 665, showed an increase of 67 over 1959. The cost of accidents to industry generally, according to British Productivity Council figures, was 19 million man-days, and about £100m. in cost production each year.

New Safety Codes on Way

Codes of safety regulations which would for the first time cover the construction industries as a whole were in preparation, Mr. Thomas continued. It was hoped that when all these regulations were in force the industries would have comprehensive safety provisions, compliance with which would at any rate go some way towards reducing the grim annual toll of accidents.

'Legislation is only a small part of the story,' he added. 'Statutory requirements are by nature, minimum requirements. Safety in industry can be achieved only if there is a clear realisation on the part of those who work in it, whether employers or employees, that they have a personal responsibility for improving standards.

'We are, I am afraid, a long way from that goal,' Mr. Thomas went on. 'There are firms in the construction industries with an outstandingly good safety record, but unfortunately there are still not enough of them. In this field it is all too easy to leave the work and responsibility to the few enthusiasts who are prepared to devote time and money to the pursuit of higher standards.'

In congratulating the group, and other similar groups in different parts of the country, on their efforts towards accident prevention in the industries, Mr. Thomas added: 'I can only hope that your example, together with the grave accident figures which have just been announced, will rouse more widespread and vigorous support in the construction industries so that in time you will be able to say "Our industry is safe."'

'This Wasteful Tide'

In his response, MR. J. B. WHITE said that despite all efforts the wasteful tide of accidents flowed on, seemingly unchecked. 'Safety,' he said, 'is a matter of heart and emotion, not only of regulations.'

Accidents in industry were measured by the yardstick of the 'frequency rate.' Most builders were reticent about giving details of the rate in their own businesses but it was estimated that in the building industry as a whole the frequency rate lay somewhere between 2 and 3*. 'We must increase our efforts to reduce this,' said Mr. White. 'We must make firms understand that good safety precautions are a factor in high production.'

The toast of 'The Guests' was proposed by MR. J. A. HAYWARD, OBE, who recalled that the original group of 13 members in 1953 had grown to 156.

* This means that, for every 100,000 hours worked, between two and three men are away from work by reason of accidents that incapacitate them for three working days or more.—ED.

Speaking on the advent of the new Safety Regulations, he expressed the hope that they would come 'in one fell swoop,' rather than as a series over a period. Useful though those regulations could be, they were not the whole answer; there had to be the will to make them work.

In his response, SIR RICHARD COPPOCK, CBE, spoke of his early days in the NFBTO when the operatives were trying to get written regulations that unheeding employers could not walk through, and mentioned the great help he had had from Sir John Simon in drafting the first safety regulations.

'I am glad to think that new regulations which I hope will be tightened up still further are on the way, and I am glad that the Federation of Civil Engineering Contractors is to be associated with them, but I hope that the interests of that section, with its 250,000 men, will not be allowed to interfere with the well-being of our million or more of building workers.'

Those present included: T. W. McCullough (HM Chief Inspector of Factories), D. H. Adams, G. Baker, D. H. Farmer, F. J. Kirk, M. Meredith, and W. D. Short (HM Inspectorate of Factories), P. H. Bates, E. E. Batty, L. H. Colls, Col. J. C. de Vine, B. H. Edwick, C. A. Hart, A. F. Hatfull, G. Holliday, E. L. Jones, I. M. Leslie, T. McMillan, J. H. Mills, J. Roots, Brig. R. F. E. Stoney, F. A. Vowles, Patrick B. Whitehouse and M. J. Youngs.

More Work for Plumbers

'Growing Demand for Central Heating'

MEMBERS and guests attending the joint annual dinner and dance of the Institute of Plumbing and the National Federation of Plumbers and Domestic Engineers, held at the Park Lane Hotel, W1, on March 8, heard SIR CAMPBELL HARDY, KCB, Director, Coal Utilisation Council, refer to 'the widespread and growing demand for central heating, in which your trade is playing such a valuable part.' No doubt, he said, the plumbers would support 'our campaign for central heating' that was to be started in the spring.

The toast of the 'National Organisations' was proposed by MR. J. A. BROOKS, President, National Federation of Plumbers and Domestic Engineers (Employers), who said that an idea had got about that any sort of trade association was quite wrong in principle. This criticism, he said, was based on ignorance of the true purpose of associations such as those represented at the dinner, which were designed not only to benefit their members but the country as a whole.

MR. FRANK RUSSON, President, National Federation of Building Trades Employers, who responded, after referring to the 'almost limitless' building and contracting programme that lay ahead, said that times were changing, and maybe some changes were needed in the building organisations themselves to meet these changes.

The toast of the guests was proposed by MR. R. E. STANLEY, President, Institute of Plumbing, who said that the Institute was doing much in the technical and educational field to keep the plumbing industry up to date. SIR CAMPBELL HARDY responded.

Association Football

RICS Defeat Willesden Technical College

THE RICS SOCCER TEAM gained their second success on March 8 when they visited and defeated Willesden Technical College, 6—3. In order to give a game to all available players, seven changes were made in the Institution team from that which defeated the College of Estate Management 2—0 in January.

The Willesden Technical College team, more used to the local conditions, gained an early lead when they scored direct from a corner. The Institution side then settled down and, after forcing a College defender to put through his own goal, added two further goals to gain a 3—1 advantage at half time.

The College came back in the second half to level at 3—3, their third goal again coming direct from a corner. After this the Institution side again took command and added three more goals to win 6—3.

RICS goal scorers: Walker 2, Milton 2, Newton 1.

Lead Information Sheets

A COMPLETE SET of lead information sheets, reprinted from the 'Architects' Journal' library of information sheets, has been issued in a convenient stout folder by the Lead Development Association, 18 Adam-street, London, WC2, from whom copies are available.

The Co-ordination of Dimensions in Building

A System of Preferred Dimensions Demonstrated in Houses at Hatfield New Town

BY T. L. CARHART-HARRIS, BARCH, ARIBA, AND H. W. HARRISON, DIPL.ARCH, ARIBA

THIS PAPER* briefly describes the design and construction of a group of houses at Hatfield New Town which formed the first part of a building project based on the use of a system of co-ordinated dimensions, which is applied both to the sizing of components and their use in design. The system described is one in which it is possible to make use of many existing products, either directly or with small modifications, and it is intended for use in all types of building and in all forms of construction.

Description of the Scheme

Two different types of terrace house (Fig. 1) together with stores and garages form this first part of a housing scheme designed for the clients, the Hatfield Development Corporation.

It was decided in consultation with the clients that the scheme as a whole should include as many variations of plan type and forms of construction in which to demonstrate the principles of dimensional co-ordination and the ranges of components developed, as would be commensurate with the clients' requirements for a small corner site amongst existing development.

The scheme for the site (see Fig. 2) included seven 3-bedroom 5-person two-storey terrace houses, divided into two separate terraces running at right-angles to the fall of the land and closing the end of the two long terraces already built. A group of 3 or 4 bungalows along the south-east edge of the site and a possible 4-storey block of flats of framed construction in the north corner were envisaged to complete the scheme.

Of the two terraces built in the first part of the scheme, one terrace (Fig. 3) of 3 houses, known as the 'Brick Box' terrace, is of typical brick and block load-bearing construction, with wet finishes internally. The other terrace (Fig. 4) of four narrow-frontage houses is of less conventional brick crosswall construction, with timber panel infilling front and rear. In this terrace more use is made of prefabricated components and dry finishes internally.

Both house types are designed to the usual requirements of the clients for new town housing, of the Ministry of Housing and Local Government for room areas, and to the local authority by-laws.

The 'Brick Box' house is a fairly typical plan of its kind, having a central staircase and joists and trusses located from the outside walls to internal load-bearing partitions. The dining-kitchen is linked to the living room by a closable hatch.

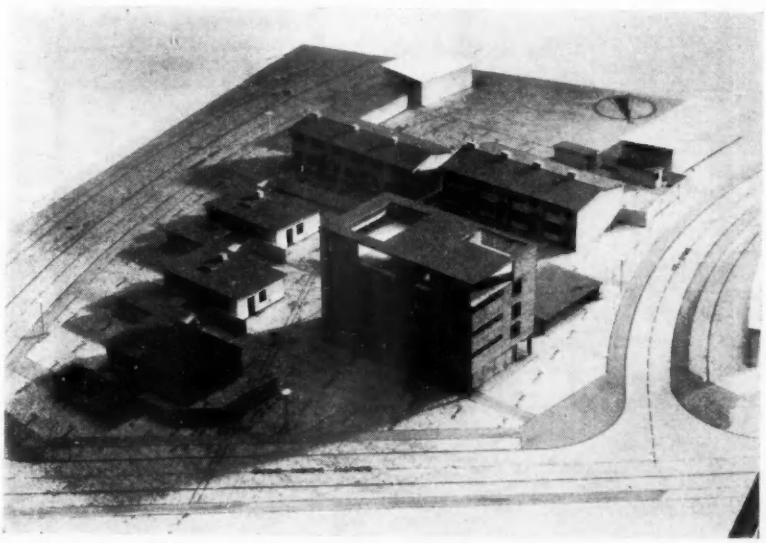
On the other hand the 'Crosswall' house employs more open planning. There is a single clear span of 15 ft. between crosswalls and because of the narrow frontage an internal bathroom is employed, using a natural ventilation duct. The store in this case is at the bottom of the garden and there is back access to all gardens.

In both house types a combined fuel store, meter cupboard and dustbin recess is accommodated adjacent to the front entrance porch with direct access from outside. The fuel however can be obtained from inside the house.

The structure of the 'Brick Box' terrace consists mainly of cavity external walling composed of an outer skin of facing bricks nominally 9 in. by 4½ in. by 3 in. but to an agreed maximum size, and an inner skin of 18 in. by 9 in. by 4½ in. concrete blocks grooved for co-ordinated cutting. Internal work is mainly of common bricks also to an agreed maximum size with first floor partitions of 3 in. thick grooved lightweight concrete blocks. The wooden windows were made to a standard section, and to a range of co-ordinated widths and heights. The finish

Fig. 1—The two terraces, showing preferred dimensions used

Fig. 2—Model of the proposed scheme for the site



* Crown Copyright Reserved.

to the walls was two-coat plaster, with a single skim coat on ⅜ in. plasterboard for the ceilings: plasterboard was precut to size. Timber floor joists were thicknessed for depth and precut to length, and the roof structure precut and packaged for individual houses.

An essentially simple structure was used for the 'Crosswall' terrace, with the 9 in. loadbearing crosswalls constructed with the common bricks with the prefabricated storey height timber external panels, precut floor joists and roof purlins spanning between. Normal cavity walls occurred at each end of the terrace. In this terrace all the sheet materials for dry wall and ceiling linings were precut to the range of sizes needed. The storey height partitions on the first floor were 3 in. thick prefabricated plasterboard units selected from the co-ordinated range of sizes. In this case dry finishes were used throughout.

Joinery work on both terraces, i.e. doors and frames, staircases and kitchen cupboards, were all to special co-ordinated sizes in softwood construction.

The external finishes for the scheme mainly consisted of stock facing bricks, with the curtain wall panels of the 'Crosswall' terrace clad in vertical cedar boarding. The roofs of the houses were of sheet aluminium fully supported on tongued and grooved boarding, while garages and external stores had an asbestos cement roof covering.

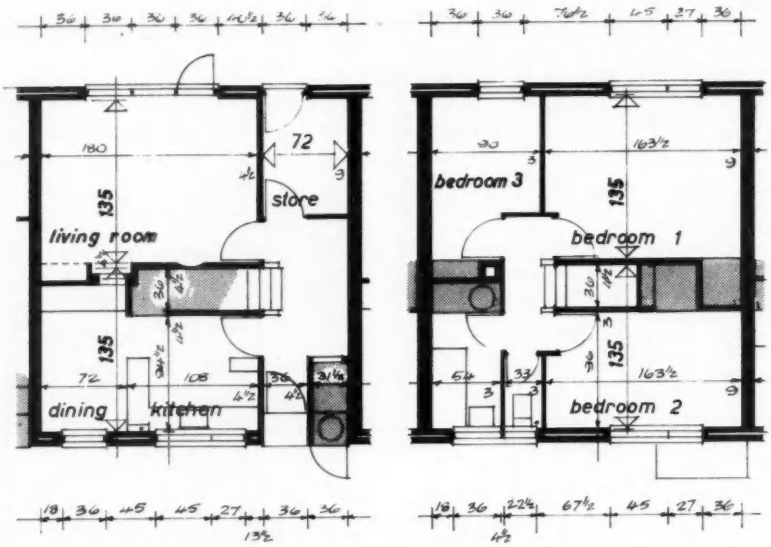


Fig. 3—The 'Brick Box' terrace house

Materials and Components

In developing a system of dimensional co-ordination it is naturally desirable that it should be tried out on a wide variety of building types, forms of construction and types of materials and components.

There has been a tendency hitherto in modular co-ordination to concentrate on non-traditional materials and limited systems of construction, though the changes which acceptance of either modular or dimensional co-ordination would entail must also take into account existing materials, methods, and economy, with suitable adaptation or modification.

Much of the development and background to the methods to be described here has been based on the experience of prefabrication in this country and the efforts to co-ordinate it. It is therefore significant that in this case the principles that evolved have been applied to the sphere of housing where many traditional components are widely used and where little has as yet been done in this country in terms of dimensional co-ordination. It is hoped that the description of the work will indicate how the principles are equally applicable to other types of building and other forms of construction.

The aim has been to produce a system of dimensional co-ordination that is applicable both to design and to the set of components used in building generally. Limited and related ranges of components are developed from the system of preferred dimensions to form an economic pool of co-ordinated components that can be put together in building with the minimum of cutting and waste.

The Method of Dimensional Co-ordination

In order to carry out dimensional co-ordination in practice it is first necessary to produce a simple set of related components which need to meet the following major criteria:

(1) they should be few enough for manufacturers to produce economically;

(2) they should be sufficient for the designer to use in many ways and in all types of building;

(3) they should be capable of being used together in the building without wasteful cutting and adjustment.

To have all possible sizes fails hopelessly on the first count.

Spasmodic or arbitrary and unrelated

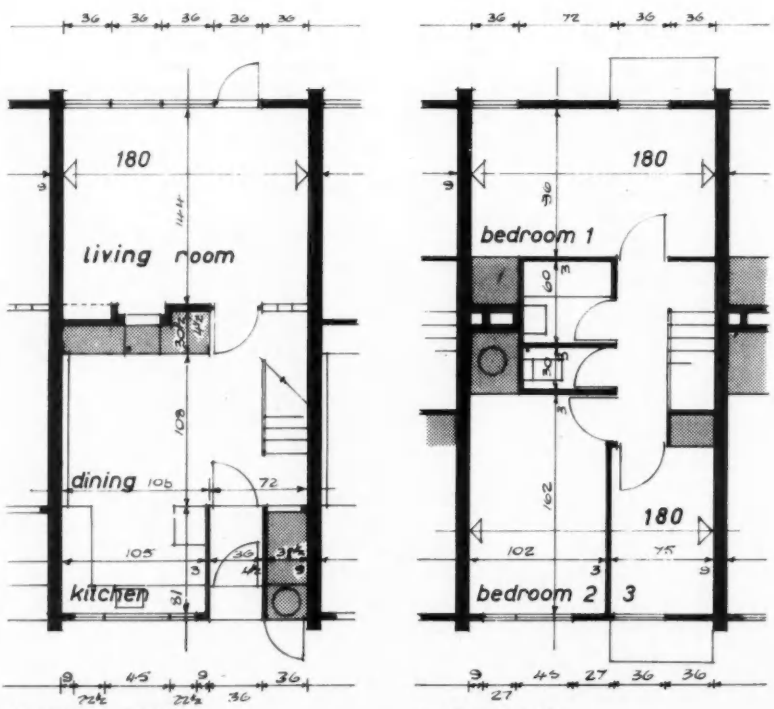


Fig. 4—Terrace 'Crosswall' house

selection of sizes for different components would not allow interchangeability of them in differing contexts nor sufficient predetermined flexibility of use by the designer, and thus fails on points 2 and 3.

To give nominal relationship of component sizes merely by choosing them to any multiple of a single base module does not, in itself, ensure that components can be put together in building without cutting and waste. Further selection is essential to meet all the above criteria and it is necessary to include a system of preference for selecting the related sizes of components.

Attempts to reduce the number of sizes available for components solely by means of a module and its multiples have resulted in modules of the order of 3 in., 4 in., or 4½ in. These give comparatively few numbers in the lower dimensions but far too many for economical manufacture in the medium and large dimensions. At the same time the size of any of these modules on their own is too coarse to provide for the effective co-ordination of the various small thicknesses of structure and finishes, and a systematic way of dealing with them is needed.

In developing a system of preference for co-ordination and the selection of limited and related component sizes to meet all the above criteria in practice a graduated scale of related dimensions was used, which provided a sufficient number of sizes in the smaller dimensions while maintaining an economic limitation of the larger sizes.

Preferred Dimensions

A system of preference for selecting related component sizes was therefore considered essential. The system developed for selecting preferred dimensions for co-ordination is based on a number pattern, which has been described elsewhere.*

The nucleus of the system is an additive series of numbers 1, 2, 3, 5, 8 . . . which is expanded by successively doubling and tripling, halving and thirding. The expansion is infinite, and limits have therefore been set in practice to meet present requirements for sizing components. This does not, however, mean that the expansion of numbers may not be extended in particular circumstances such as for design, or as conditions in the industry require or change.

The set of preferred dimensions produced from the number pattern is set out in Table 1.

Within this general set of preferred dimensions, further limitation is introduced.

First preference dimensions shown as clear numbers in the table, are those used both for sizing components and in design. They provide the useful nucleus of dimensions which directly relates the large with the small components.

Second preference dimensions, which are shown bracketed in the table, represent an expansion of the nucleus primarily for design purposes. These would only be used for component sizes in special circumstances where an extension of the range is required.

Increment dimensions which are used in design only and which are not shown in the table are the many dimensions, other than preferred dimensions, which the preferred component sizes can achieve in combination.

Four columns are shown in the table. The 1½ in. column accommodates those sizes necessary to deal with thicknesses, finishes, and 4½ in. brick sizes. The 3 in. and 4 in. columns are shown either side of the 12 in. column, which of course is common to both. In practice only three adjacent columns can readily be used with each other for co-ordination—the two extreme columns of 1½ in. and 4 in. cannot be used together as it would necessitate working to a ½ in. increment of flexibility, which although possible in theory would require too many sizes in practice.

The sizes used for co-ordinating the first part of the Hatfield experiment were drawn from the first three columns only.

TABLE 1

1½	3	12	4
1½	3		4
(4½)	6		
7½			8
	9		
(10½)			
		12	
13½			
	15		
	18		16
(19½)			20
	(21)		
22½		24– 2 ft.	
	27		
	30		
(31½)			
			32
		36– 3 ft.	
	(39)		
40½			40
	(42)		
	45		
		48– 4 ft.	
			(52)
	54		
(58½)			
		60– 5 ft.	
	(63)		64
67½			
		72– 6 ft.	
	(78)		
			80
	81		
		(84)	
	90		
(94½)			
		96– 8 ft.	(104)
		108– 9 ft.	
	(117)	120–10 ft.	
121½			
	(126)		
			128
	135		
		144–12 ft.	
		(156)	
			160
	162		
		(168)	
(175½)			
		180–15 ft.	
	(189)	192–16 ft.	
(202½)			(208)
		216–18 ft.	
	(234)	240–20 ft.	
	243		
		(252)	
			256
	270		
(283½)			
		288–24 ft.	
		(312)	
		324–27 ft.	
		(336)	
	(351)		
		360–30 ft.	

Dimensions in inches. (Sizes from the 1½ in. column and the 4 in. column cannot be used together.).

Use for Component Sizing

From this set of preferred and related sizes, limited ranges of components were developed to meet the building requirements. The particular selection of sizes in any range is influenced not only by the dimensional requirements but also by those of function, economy, method of manufacture, handling, and transport.

A set of preferred sizes available for component sizing is illustrated in Fig. 5, where they are set out visually as the rectangles in heavy outline; on this can then be marked any single range of sizes for a component, for example the three widths and two standard heights blocked in for the plasterboard range.

Components fall into two categories:

(a) those used SINGLY such as beams, joists or trusses, baths or staircases, which govern a significant dimension in the building, and which are large or medium sized components, prefabricated or precut, and

(b) those used in an ADDITIVE way such as bricks, blocks, tiles, panels and sheet materials (Fig. 6).

An example of the type of large component used singly in length is the floor beam (Fig. 7). This is where preference applied to the large sized component gives relatively few manufactured sizes while giving a fairly wide and graduated choice to the designer.

For components used additively, the use in combination of two, three, or more dissimilar sizes offers considerable dimensional flexibility, and ranges may be designed to provide the specific degree of flexibility required in relation to the overall functional and economic properties of the material or component, particularly in accommodating thicknesses of structure and finishes. An example of this principle for additive components is shown in the three available widths of the above range (Fig. 7) which used in combination can work to 1½ in. increments.

Additive components may be further subdivided into those that can be cut and those that cannot. Where a component is easily cuttable, and can be adapted for co-ordinated cutting to give the necessary flexibility without wastage, then this limits the number of sizes necessary for manufacture. Techniques have been evolved and used at Hatfield which simplify this process, for example in the grooving of lightweight concrete blocks*

* Ehrenkrantz, E. The Modular Number Pattern. Flexibility through Standardisation, Tiranti, London.
Allen, W. A. The Evolving Pattern. 'Journal' of the RIBA. April, 1955.

* T. L. Carhart-Harris. The Development of Grooved Lightweight Concrete Blocks. 'The Builder,' June 12, 1959.

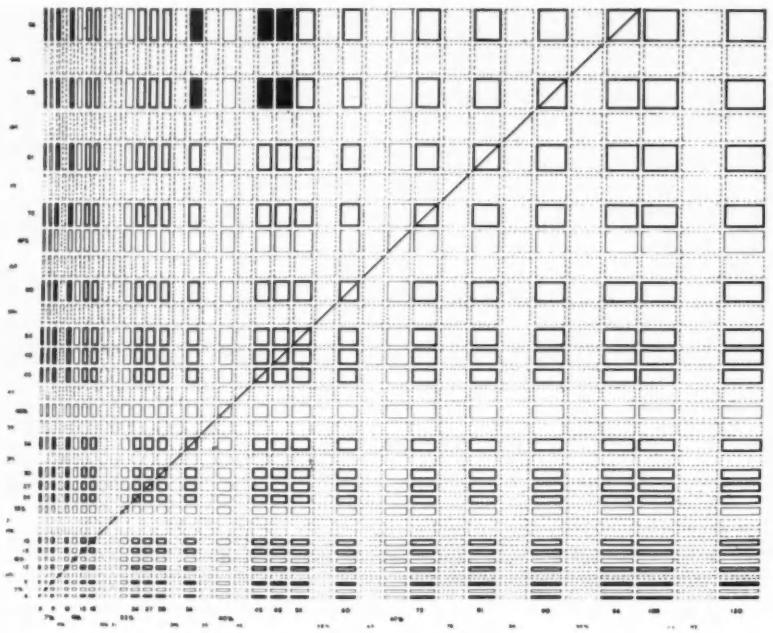


Fig. 5—Preferred dimensions available for component sizing

to provide easy cutting of two usable co-ordinated pieces from a single manufacturing size of block, and in the co-ordinated cutting of standard sheet sizes for use without wastage (Fig. 7a), in which three manufacturing widths and one standard height are shown.

Where components are not cuttable, then it is necessary in some cases to use several dissimilar sizes selected from a range to meet the flexibility requirement.

Tables of sizes showing these dimensional properties are useful in design, while the properties of only two dissimilar sizes can be predicted by formula.*

* Harding, J. W. and Vallance, L. F. Geometrical Aspects of Modular Co-ordination, 'The Builder,' September 27, 1957.

The draft ranges of components designed for use in the BRS Housing will be described in another article.

Use in Design

The selected ranges of co-ordinated components provides the designer with a simple and well-related kit of parts for interchangeable use in many different circumstances.

The available sizes in any component range must however always influence the design procedure, and the immediate effect of this is to bring forward to the design stage decisions which are normally left to the working drawing stage. The systematic use of preferred size components means that in most cases clear carcase dimensions must be considered first as relating directly to the components themselves, which particularly affects the clear spans and structural dimensions. Centre-to-centre line plan grids which are useful in design but do not always directly relate to component sizes may need modification in some cases. The co-ordination of applied finishes should usually be considered after the co-ordination of structure, following the normal sequence of building operations.

A primary rule for design is that where a dimension is governed by the use of a single large component, then that must be a preferred dimension. The principal example of this is in the span direction, where the joist or beam size governs the clear span dimension. Preferred dimensions will also be found to be the most suitable dimensions, by reason of their many factors, for the co-ordination of large units with repetitive use of components of one size, for example brick, block, wall panel, ceiling panel and floor tile. The same preferred dimensions allow

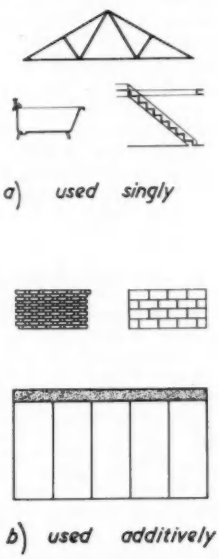
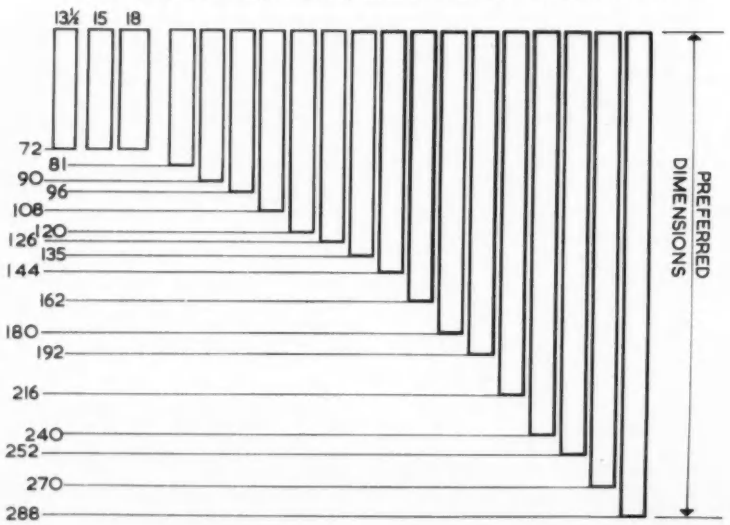


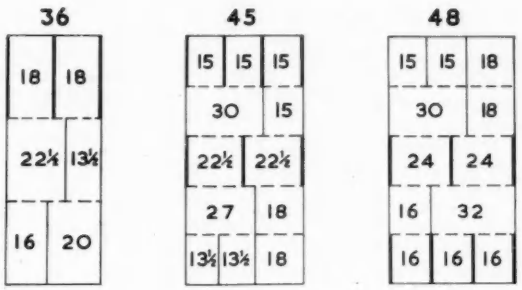
Fig. 6—Classification of components

many alternative combinations of dissimilar preferred sizes to make them up.

Finally in the design process, where the use of a single component does not govern dimensions, ranges of dissimilar sizes may be used additively for the specific degree of flexibility, 'increment,' or 'module' which may be required by the economics of thickness, structure, or function. For example, if sheets are to be used side by side, and only one width were available, say, 48 in., then only multiples of 48 in. could be formed with out cutting. If 36 in. sizes were used with the 48 in., then by suitable combinations every 12 in. increment could be formed beyond 6 ft.: the addition of other foot multiple sizes would still only make possible foot increments. If a 45 in. width is introduced, however, a highest common factor of 3 in. is given instead of 12 in., and sheets can then be combined to form

Fig. 7—Preferred range of lengths and widths for precast beams





Above: Fig. 7a—The range of three board widths showing cutting lines. Right: Fig. 9—Nominal 3 ft. staircases as loose fit in 3 ft. nominal carcase opening

3 in. increments beyond a certain point. The introduction of a 1½ in. preferred size such as the halving of the 45 in. width into two 22½ in. widths immediately gives 1½ in. increment flexibility to the range.

Differences in Building Methods

Components must fit within their allocated space and not displace adjacent components if co-ordination is to work successfully.

For the designer this means that prediction of the actual location of the components in the final building is possible, particularly for junctions and interceptions, and the possibility of having to

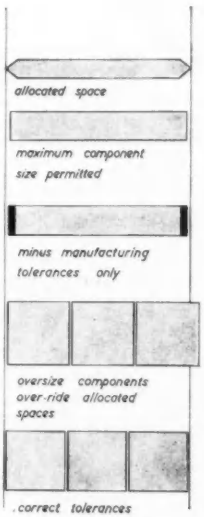


Fig. 8—The system of tolerances

make later adjustments during the building operations can be minimised at the design stage. Often under present conditions the actual positions of components bears little relationship to the nominal sizes indicated on drawings, owing to the unequal accumulation of plus and minus tolerances, and as a result cutting, fitting, botching and waste are accepted practices of the day.

For the manufacturer this implies that all manufacturing tolerances must be minus (Fig. 8). Where the manufacturing process permits only plus and minus control, then the target size should be set low enough for the maximum size to come within the required size, so that with the erection tolerance and joint allowance the component fits its nominal or 'modular' space.

For the builder this means that he must set out components within their allocated spaces, which will, with the use of correctly sized components, maintain a sufficient overall accuracy compatible with the type of structure. Thus he can set out his overall dimensions to those indicated on the plans, and work can proceed confidently, knowing particularly that the larger prefabricated and precut components will fit without adjustment and that the overall accuracy of the building will improve.

Results

Measurements were taken of components as they were delivered to the site at Hatfield to see how far the various suppliers had succeeded in meeting the requirements for minus tolerances at this early stage of development.

In the large majority of cases, particularly where the supplying industries had co-operated in the development work over a considerable period of time, the components supplied were generally correctly sized to adequate minus tolerances. This was so with common bricks, concrete blocks, door and window frames, staircases and joinery items, precut joists and roof timbers, prefabricated partitions, thermoplastic tiles and fittings such as baths, sinks, and precut plumbing units.

In two cases, facing bricks and precut plasterboard, it was not possible at this stage to ensure consistently ideal minus tolerances in manufacture, while with a few components the usual plus or minus tolerances had to be accepted. The clay flue liners were a case in point, as they consistently exceeded the nominal 9 in. by 9 in. dimensions by up to ¼ in. As the bricklayers had already grasped the principles of minus tolerances and controlling the overall dimensions of their work, the oversize flue-liners were a particular embarrassment to them.

Another example of how a seemingly small oversize can affect an adjacent component occurred in plus tolerances of up to ⅜ in. in some curtain wall panels. This led directly to local cutting of facing bricks in the 9 in. piers where the theoretical wastage would have been nil.

A more familiar example was the 6 in. x 6 in. BS size quarry tiles. These were all delivered to 6 in. x 6 in. actual size or over so that there was no allowance at all for the joint. Many architects and builders will have met this difficulty, where a dimension on plan has been carefully worked out to a 6 in. grid and the manufactured article makes it impossible to lay to those dimensions, making cutting and adjustment necessary.

A sufficient degree of accuracy was maintained in the structure to incorporate successfully the large majority of components, and where any difficulty was experienced at all, this would usually be traced back to an oversized component. These local variations provide useful data for assessment of actual tolerances required for future work. The carcase dimensions of the houses were accurate enough to allow all the precut joists to fit the predetermined position without adjustment, and at wall plate level this degree of accuracy was still maintained for the fitting of the precut roof structures. The staircase in the 'Brick-Box' terrace provides a useful example of the successful allocation of tolerances in a practical fitting problem. The two enclosing walls of the nominally 3 ft. wide well were each set back the half a joint minus tolerance from the 3 ft. nominal size marked on the slab. The staircase was manufactured to a target minus tolerance of ⅜ in., and in all three cases this was sufficient to overcome slight inaccuracies in the brickwork, and the staircases fitted as a loose fit (Fig. 9).

The same principles apply to heights which were easily maintained with the help of storey rods, and consequently storey height components, such as curtain wall units, prefabricated partition units, and precut single-stack plumbing units

were fitted with no need for adjustment.

The reaction of the bricklayers was interesting. They were normally used to large repetitive contracts with considerable bonus rates and were thus reluctant at first to attempt laying brickwork to dimensions. However, with the maximum size limitation on the brick, the reduction of wasteful cutting in the design stage, and the simple setting out of their work to brick dimensions, they found that their work was simplified and they obtained their bonus.

The accuracy of construction was noticed by most tradesmen, particularly by carpenters fitting joinery to brickwork, and by finishing trades especially in the fitting of precut plasterboards to ceilings and walls, and in laying floor tiles. It is apparent that initial care in setting out and control of the early construction work is essential so that the large prefabricated components may later be incorporated with confidence, and much depends on site supervision at this early stage.

Cutting and waste on the site was carefully recorded and in particular the brick and block wastage was collected each day and counted. The resultant overall brick waste figures were 2½ per cent on the garage block, which included piers and a sloping roof, under 2 per cent on the 'Brick-Box' terrace, and 1 per cent on the 'Crosswall' terrace. Most cutting took place unavoidably in cutting for the roof slope and in the corbelling over of chimney flues. No further cutting of the precut carcase timber was necessary. Floor and roof boarding were delivered to commercially available lengths and thus site cutting to length and some wastage resulted. Wastage on other materials was negligible, although the incorrect tolerances on some plasterboard sheets led to some site adjustment and a small amount of cutting.

Conclusions

From the design point of view the use of the system of preference appeared to meet the requirements and considerably helped in settling dimensional decisions at an early stage.

No serious objections to the limited ranges of sizes arose on aesthetic grounds. The choice was usually wide enough to meet most circumstances and the designs appeared to benefit rather than suffer from the degree of discipline and interrelationship of sizes. Area and functional requirements were readily met.

The use of components correctly sized to minus tolerances made building to dimensions quite practical and resulted in an unusually accurate structure for this type of work. Although much depends on an intelligent application of the principles if the utmost is to be obtained from the system of co-ordination, it is nevertheless apparent that the principle of the loose fit within a nominal allocated space would be of immediate benefit in itself if applied consistently to all components, though it must be coupled to correctly related sizes to achieve its full potential.

The techniques adopted for easing the site problems of co-ordination, for instance in the grooving for co-ordinated cutting of the lightweight concrete blocks, the stipulation for a maximum size of brick, the use of a specially sized window unit in a standard assembly in order to maintain overall nominal whole multiples of size, the use of precut timbers, and the accommodation of structural thicknesses appeared to function as anticipated.

Since the scheme was a small scale pilot experiment there could be no direct evidence on the economics of the system in use; any system of co-ordination depends on the creation and availability of co-ordinated standards. However, the potential advantages and disadvantages could be reasonably assessed. Both contractor and labour expressed interest in co-ordinated schemes which would also be large enought to obtain the further benefits of repetitive work and of bulk buying, when a more detailed assessment should be possible.

The use of the system of co-ordination described, both for the sizing of components and for their use in design, in addition to providing some useful immediate advantages which are relatively easy to apply, appears to offer considerable long-term advantages as industrialisation of building develops. The establishment of a pool of economic standard components which can be used in all types of building, and furthermore which can be related in all types of design by similiar techniques, would be an important outcome of these studies.

Acknowledgements

The project forms part of the United Kingdom contribution to Phase II of the European Productivity Agency's international study of modular co-ordination, and the value of the association with other members of the International Group is gratefully acknowledged.

The Brick Development Association, the Aluminium Development Association, The Gypsum Plasterboard Development Association, and particular manufacturing organisations contributed substantially to the experiment. Valuable collaboration was also received from John Mowlem and Co. Ltd., the general contractors, the sub-contractors and manufacturers associated with the work, the Hatfield Development Corporation, the Hatfield Rural District Council, and the Ministry of Housing and Local Government. The help of all those who co-operated in this project was much appreciated.

The authors wish to acknowledge the contribution of their colleagues, in particular Mr. W. A. Allen, and their former colleagues who have worked with them on this project.

The project forms part of the general programme of work of the Building Research Station, DSIR, and this description of it is published by permission of the Director of Building Research. The article is issued as BRS Note E 1066.

Prestressed Concrete Piles

Some Recommendations for Driving

TWO ENGINEERS who collaborated in the driving of the first prestressed concrete pile in England—at Stanford-le-Hope, Essex, in May, 1949—gave an account of their experience in a paper submitted to an ordinary meeting of the Institution of Civil Engineers on February 28. The engineers, MR. S. V. GARDNER, MICE, chief engineer, Anglian Building Products Ltd., and MR. D. H. NEW, ERD, BSC, MICE, chief structural engineer, Holland & Hannen and Cubitts (Great Britain) Ltd., discussed the principles of prestressing to concrete piles and the use of such piles for river installations, such as fenders and dolphins. The most important aspect of the paper dealt with the formation of tension cracks in the pile shaft under certain driving conditions. Examples within the authors' experience were given from which they deduced recommendations which will overcome such trouble.

Overall Economy

The cracking of prestressed concrete piles, especially under light driving conditions, is not easily understood and in consequence some engineers have developed a prejudice against their use, being content to accept the higher overall cost of normal reinforced concrete piles with little consideration for driving method and equipment. The overall economy of prestressed piles demands high-grade driving practice and equipment, and the Messrs. Gardner and New gave their recommendations as follows:

(i) Select the heaviest hammer available, preferably not less than the weight of the pile.

(ii) Ensure that the pile cap fits properly, that the packing is in good condition, and that the blow is delivered squarely.

(iii) Ensure that the pile is not being strained by toggle bolts or other factors.

(iv) Reduce the drop below normal when driving in easy conditions.

(v) Make careful observations on the first few piles on which to base bulk driving techniques.

(vi) If, when all precautions have been observed, tension cracking occurs, use a still heavier hammer.

These recommendations follow good driving practice and do not involve anything elaborate or expensive. It is essential, however, that ground conditions should properly be considered since these may affect the design of both prestressed and normal precast concrete piles. There have been instances in which the existence of corrosive conditions was not appreciated until the piles had been delivered to the site.

Boys' Clubs

Big London Building Programme

FROM A SPECIAL CORRESPONDENT

A BUILDING programme by which twenty new Boys' Clubs will be established in the next few years within its area has been initiated by the London Federation of Boys' Clubs, whose Patron is The Duke of Edinburgh. Each club will serve a new housing estate or give a club to an area that is at present without one. In most cases the buildings will be new but in some existing premises will be adapted.

Funds for the new clubs (each of which will cost on average £20,000) are being provided through an appeal to charitable organisations interested in purposeful work for youth. The Pilgrim Trust, the Dulverton Trust, the Variety Club of Great Britain, the Isaac Wolfson Foundation, the Saints and Sinners Club, Mr. Siegi Sessler, Mr. Charles Clore and the Showmen of Battersea Park are among present benefactors, each of whom is sponsoring one or more clubs. In every case application for grant aid by the Ministry of Education will be made.

Individual projects are:

Woodberry Down: A scheme is being worked out in conjunction with the London County Council for a club on the estate. The architect is Mr. H. Reginald Ross, FRIBA, 43 Great Ormond-street, WC1.

Grove Park: A project is in hand for establishing a club and Mr. C. W. Lowe, ARIBA, 7 St. Thomas-street, SE1, has been asked to advise on the scheme.

Camberwell: A scheme initiated by the Rev. J. G. Nicholls, vicar of Camberwell, has been accepted for inclusion in the 20 new clubs programme. Mr. D. Bush, BArch, ARIBA, 22 Tranquil Vale, SE3, has been appointed architect, with Mr. A. Llewellyn Smith, MBE, FRIBA (Llewellyn Smith & Waters), 103 Old Brompton-road, SW7, as consultant.

Wandsworth: Messrs. Llewellyn Smith & Waters have been appointed architects for a club in Garratt-lane. Tenders have been received and a contract will shortly be placed.

Streatham: Planning consents have been received for a club here and work has now been begun by the contractors, Reema Construction Ltd. The honorary surveyor is Mr. C. L. A. Anthony, BSc, ARICS.

Roehampton: Mr. A. Llewellyn Smith, MBE, FRIBA, is architect for a club on the LCC estate, and sketch plans have been prepared.

Harringay: A contract at £23,920 submitted by Messrs. James Thomas & Son of Harringay, N, has been accepted for the building of this club. The architect is Mr. J. A. Clark, ARIBA, 17 Woodberry-avenue, Winchmore Hill, N21.

Battersea: The LCC is considering leasing to the London Federation a site for a club on the corner of Petworth-street and Rosenau-road, Battersea Park. No architect yet appointed.

Hackney: The Kingsmead Youth Club is being assisted by the Variety Club of Great Britain to rebuild premises on a new site. A contract for the work will shortly be placed. The architect is Mr. Harry Moncrieff, FRIBA, 73b, South Side, Clapham Common, SW4.

Poplar: The Poplar Boys' Club is to rebuild its premises on a new site for which planning approval has been obtained from the planning authority. A tender at £31,143 will shortly be accepted subject to approval from the Ministry of Education. The architect is Mr. C. J. Foster, LRIBA, 62 Church-way, Whetstone, N20.

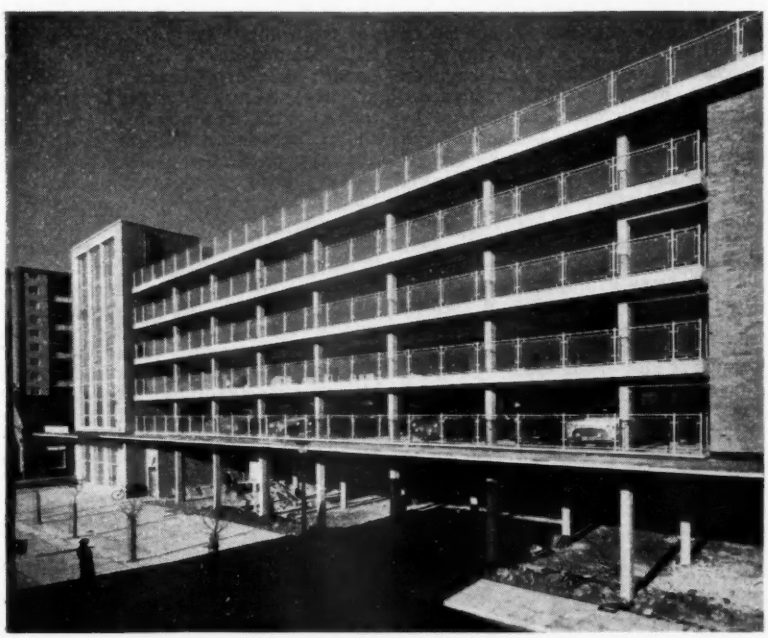
Lewisham: The Borough Council have offered a site in Lewisham North for a club, and planning permission is being sought. Architects are not yet appointed.

Bellingham: Plans for a club on part of the London Federation playing field at Randlesdown-road have been prepared by Mr. J. Geoffrey Batty, ARIBA, 142-3 The Minories, EC3. They include for changing rooms, showers, etc., for teams using the ground.

Loughborough Junction: Mr. A. Llewellyn Smith, MBE, FRIBA, 103 Old Brompton-road, SW7, is architect for a club estimated to cost in the region of £15,000.

The White City: The London Federation is co-operating with the London County Council in the provision of a club to serve this estate. Plans are in course of preparation by Mr. A. Llewellyn Smith, MBE, FRIBA.

The Allhallows multi-storey car park at Bedford, opened recently by Mr. John Hay, Joint Parliamentary Secretary to the Ministry of Transport. The car park provides space for 262 cars and an extension soon to be started will accommodate a further 238. Lock-up shops are to be provided at ground level which will provide extra revenue and thus reduce the parking cost payable by motorists. The garage was designed by the borough engineer and surveyor, Mr. F. W. Dawkes, BSc, AMICE, MIMunE, and the principal contractor was Holst and Co. Ltd., of Watford



Town Planning Decision

Higher Density Permitted at Walton-on-Thames

ACCEPTING the recommendations of his Inspector, who conducted the inquiry, the Minister of Housing and Local Government has allowed the appeal of Wanderings Farm Estate Ltd. against the refusal of Walton-Weybridge Urban Council for permission to erect 16 three-room flats and 16 garages on a site at 6 and 8 Rydens-road, Walton-on-Thames, Surrey.

The Minister shares the views of the Inspector that, although an open type of housing development predominates in the neighbourhood, the appeal site, being adjacent to commercial property, is one on which a higher density of development could be adopted than that generally obtaining in the nearby residential area, without harming the area of any individual property. The Minister adds that the proposed development falls in line with his most recent advice that there should be a more intensive use of urban land, and it appears to him that the appeal site lends itself to redevelopment at a higher density.

LBFA List of Members

THE LIST OF MEMBERS, officers and committee of the London Builders' Foremen's Association, revised to January, 1961, is now available from the Association, at 47 Bedford-square, London, WC1.

The All-Electric House of the Future

Provision of a Central Control Unit Incorporating a Timer

THE TIME-CONTROLLED all-electric house of the future, where all domestic appliances were automatically turned on or off at the appropriate time, was envisaged at Harrogate on March 1 by MR. W. F. JARVIS, AIEE, AMBIM, of the North-Western Electricity Board. He was addressing the sales conference of the Electrical Development Association on the subject of 'More Adequate Wiring.'

Mr. Jarvis asked whether there was now a need for a standard distribution or kitchen centre unit incorporating a timing device. In a new three-bedroom house with living room, dining room and kitchen —provided the unit could be sited in a reasonably operational position—it would be possible to utilise the timer control for operating the cooker oven; operating the cooker hob equipment; controlling the immersion heater; and general purpose plug-socket-outlet circuits, which could supply (a) portable space heating appliances for pre-heating any room, (b) heated underlay carpets, (c) electric blankets in all bedrooms, (d) fixed infra-red heaters in kitchens and/or bathrooms, and (e) clothes drying cabinets. With a 30 amp automatic timer it would be possible, if required, to have simultaneous operation of any number of appliances up to a total loading of 7.2 kw.

'Simultaneous arrangements,' continued Mr. Jarvis, 'could include early morning hot-water plus room pre-heating, not forgetting the bathroom during severe weather conditions. The consumer who is out all day could return to a cooked meal, adequate hot water, and pre-heated rooms. Other circuits suitable for automatic timer control could include heated ceilings, paths or driveways.'

Such a distribution as the one described would, he said, enable the automatic timing device to be used fully and to overcome the problem of the cooker timer control unit when the cooker itself was renewed. It would also eliminate the temptation to attach a number of flexible cords to one time-controlled plug-socket-outlet device, rather than purchase more than one such device, plus the cost of additional socket-outlets.

Adequate Electrical Installations

It was necessary, the speaker went on, to attempt to ensure that all dwellings in the future contained adequate electrical installations, bearing in mind the effect of present-day and future building trends and techniques, particularly in multi-storey construction. Mr. Jarvis suggested that a campaign should be inaugurated among private builders on the lines of one successfully undertaken recently in America.

'In the case of local authority traditional dwellings,' he said, 'cannot we, through the medium of service charges and the "Working Formula," ensure that an adequate wiring system capable of meeting present-day demand is installed. We are all aware of the EDA publications for architects and builders, the data sheets that are available, and the work put in by district personnel in keeping contact with architects and builders. Is this really enough? Are we achieving the desired results? It is suggested that in addition to our present efforts we should start a campaign similar in conception and character to the Gold Medallion Homes scheme so successfully exploited in America.

'During construction,' the speaker concluded, 'the houses were inspected to determine if gold medallion award requirements were being met, and this close inspection was reported to have resulted in greater public acceptance of the scheme. Model homes were staffed by the companies' representatives, home service advisers, and lighting engineers.'

Electric Floor Warming

Speaking at the same conference on March 2 MR. A. F. HARDCASTLE, MIEE, commercial officer, Southern Electricity Board, said he found it difficult to understand that so much attention was given to comfort conditions when heating a factory or a block of offices, but that the same attention was not always given to blocks of domestic premises. Mr. Hardcastle was submitting a paper on 'The control of off-peak floor-warming in domestic premises.'

Electric floor-warming, he said, was more economical to install in multi-storey blocks of flats than other methods of heating, but so often the saving in capital costs had not been utilised to provide a better thermally-insulated building. Some years ago, when all other types of fuel were much cheaper, little attention was paid to adequate insulation, but with rising costs of fuel and the attainment of a better standard of living this was now an essential point in the consideration of any heating installation.

Suitable materials were available which would considerably reduce the heat losses. The old type of building construction was all too often utilised in present-day buildings. Although there had been improvement in recent years, effort was still needed to ensure that where electric floor-warming was installed, the thermal insulation of the building was adequate. If the heating system was to be under a landlord's control it was found that the owner, usually a local authority, needed little to convince him that a little extra money spent on improving the thermal qualities of the building would pay dividends.

Floor-warming under the landlord's control ensured a uniform heating service throughout the building. It produced comfort conditions in those parts in general use and avoided the feeling of cold which, on winter days, had always been too prevalent. This method of control also enabled full and proper use to be made of the off-peak floor-warming installation and a greatly improved load factor was thus obtained.

Measurement of Noise

Joint LCC and DSIR Survey

WORK HAS NOW STARTED on the noise survey jointly being undertaken by the London County Council and the Department of Scientific and Industrial Research. The area to be surveyed is bounded on the west by the boroughs of Wandsworth, Fulham, Kensington and Paddington; on the north by Hampstead, St. Pancras, Islington and Hackney; on the east by Poplar, Greenwich, Deptford and Camberwell, and on the south by Wandsworth and Lambeth. It is approximately 36 sq. miles in extent and contains a fair sample of all the various activities in the County of London.

The Building Research Station is providing the vans and apparatus for this part of the survey. LCC staff will be responsible for their positioning and connecting-up and the working of the apparatus at each of the sites.

Noise measurements will be recorded on magnetic tape at each site for about two minutes in every hour throughout a twenty-four hour period. An automatic timing mechanism in the vans will operate the recording apparatus. The noise recorded on the tapes will later be analysed in the Building Research Station laboratory. By means of a high speed level recorder and a system of relays designed at the Building Research Station the percentage of the total time of the recording for which the noise falls into any one of 15 five-decibel ranges will be determined. Other detailed examination such as octave and one-third octave analyses will also be made.

In addition to the main survey, the London County Council's scientific adviser will make detailed surveys of sound levels in selected areas with another vehicle and separate equipment. Special consideration will also be given to the measurement of noise levels at various heights inside and outside tall buildings, and to the evaluation of the effect of traffic noise on noise-sensitive buildings, such as hospitals, theatres and churches. The noise encountered is being measured directly with a high-speed-level graphic recorder and also recorded simultaneously on magnetic tape so that a full analysis can be made later in the physics laboratory and the noise level expressed as phons, the phons unit giving a truer evaluation of noise as perceived by the human ear. From the analysis it will also be possible to obtain the percentage of time for which noise was present at any particular level within a five-decibel range.

Mr. N. Fleming, lately head of the acoustics section of the National Physical Laboratory, has been appointed consultant for the survey.

Liability for Street Works

Recent Cases of Interest to Builders

THE RECENT cases of *Margate Corporation* v *Roach* and *Ware Urban District Council* v *Gaunt* are interesting to builders who are normally, as owners of land which they wish to develop, interested in their prospective liability for street works charges. Although a road is used by the public and dedicated for that use S.23 of the Highway Act 1835 provides that after that date if land is laid out as a road or occupation way even though the public use made of it was as a footpath, it does not become repairable by the inhabitants at large unless it is duly made up and taken over.

The reason for this provision is explained in the Ware Urban District Council case in a quotation from Lord Justice Hamilton in the earlier case of *Cababe* v *Walton on Thames Urban District Council* as follows:' The occasion which brought before the attention of the Legislature the need of some enactment was the practice of building owners who dedicated ways across their building estates with an eye to the development of the estate irrespective of public needs and thereby cast on the parish or its successors in obligation the cost of repairs which enured almost exclusively to the advantage of themselves and their tenants or purchasers.'

In *Margate Corporation* v *Roach* there was a strip of land which had been laid out as an occupation way and used as such until 1898. After 1898, when housing development took place, the strip was used as a right of way on foot only and was in fact shown as such in the draft map and statement prepared by the Kent County Council under S.27 of the National Parks and Access to the Countryside Act 1949.

The court refused to accept that this was a highway repairable by the inhabitants at large having regard to S.23 and distinguished this case from that of *Robinson* v *Richmond (Surrey) Borough Council* where a strip of land not used on a plot being developed was trodden down and used as a footpath. This was in fact held to be repairable by the inhabitants at large as it was never laid out as a road or occupation way. This decision of the courts was followed in *Ware Urban District Council* v *Gaunt*. In this case Walton-road was laid out as a new road and ran for a part of its way alongside a public footpath. The Urban District Council decided to make up the road including the public footpath but to make allowance to adjoining owners of ten shillings per foot in respect of the public footpath. Objections were raised and as a result the public footpath, which was in fact already repairable by the inhabitants at large, was excluded but the frontagers were held liable to meet the cost of the road.

The case was distinguished from *Kingston on Thames Corporation* v *Baverstock*, where the new road was accepted in lieu of an old diverted footpath and then became a highway repairable by the inhabitants at large, and *Attorney General* v *Esher Linoleum Co. Ltd.*, where a public footpath was merely increased in width so as to allow carriage traffic. In the present case the court held that the Walton-road was sufficiently distinct in character from the public footpath so as to justify its being treated on its own.

The case brings a number of points on private street works law that should interest those likely to be affected. Where the road was bordered by the public footpath, the court decided that the public footpath itself ' abutted on ' the road and therefore should be included in the apportionment. The Hertfordshire County Council as owners of the Ware Grammar School which was divided from the road by the footpath were however still liable to some apportionment as ' adjoining ' the road.

Although the local authority had included street lighting in the specifications of the local surveyor they could not properly include this in the street works apportionments because the resolution of the council did not make any reference to the inadequacy of the street lighting. Street works could not include matters outside road works such as ' subterranean drainage ' which can comprise ' the making of improved drainage to take away water which will require to be taken away more rapidly in consequence of that paving.'

London County Council

Technical Conference of Direct Labour Organisations

AT THE MEETING of the London County Council held on February 28 MR. E. S. HILLMAN asked the Chairman of the Housing Committee:

(i) Does any liaison exist between the direct labour force of the housing department and direct labour organisations of the Metropolitan Borough Councils and Co-operative organisations?

(ii) If not, will he consider the sponsoring of a technical conference of direct labour organisations in the London area, so that a regular exchange of information based on the pool of experience acquired by these different organisations can be established?

(iii) In view of the decision of the Council in favour of the extension of housing work by the direct employment of labour at its meeting of February 14, 1961, will he now consider the publication of a brochure explaining the benefits and advantages of direct labour to the general public?

MR. R. E. GOODWIN replied: (i) There is no formal provision for liaison but information on the activities of other organisations is obtained from the various technical publications. (ii) Yes, I will see that consideration is given to the interesting suggestion of the honourable member. (iii) The Housing and General Purposes Committees have agreed in principle to a programme of publications on various aspects of the Housing Services. A report will shortly be considered by the Housing Committee on topics for inclusion in the programme. Consideration will certainly be given to including in this programme a publication on the growth and achievements of the direct labour organisation.

Private Work by Staff

MR. ROBERT VIGARS asked the Chairman of the Establishment Committee and the Chairman of the Town Planning Committee:

(i) Are officers in the Architect's department dealing with town planning applications permitted to act in their spare time as town planning consultants and to submit planning applications to the Council on behalf of clients? (ii) If so, are there any rules to prohibit the submission of planning applications to the Council by members of the staff ?

MR. HAROLD SAMUELS: (i) No. The rule is that private paid work of a kind which might be subject to the Council's statutory supervision or consent must not be undertaken. Officers in the Architect's department are not, therefore, permitted to act as town planning consultants in regard to applications to this Council. Officers are not precluded from acting as town planning consultants in respect of applications to other authorities, but any private work can be stopped if it may be considered to detract from the efficient performance of official duties or be open to public criticism.

(ii) An officer in the Architect's department submitting a planning application in respect of premises owned or occupied by himself would be expected to inform his superiors accordingly.

Open Space Near Euston Station

MR. W. G. FISKE, Chairman of the Town Planning Committee, replying to a question by Mr. L. W. Bondy on the rebuilding of Euston Station said: The British Transport Commission have agreed that if planning permission is granted for the redevelopment of Euston Station and certain adjacent lands between the station and Euston-road, they will dedicate the eastern portion of Euston-square Gardens, free of charge, for use as a public open space and will also make provision for additional open space of not less than half-an-acre.

Garages for Council Tenants

MR. R. E. GOODWIN, Chairman of the Housing Committee, told Mr. Winston Drapkin that, on both the in-county and out-county estates, a total of 8,049 garages had been built for the use of the council's tenants and a further 3,191 had been approved, at estimated costs of, respectively, £1,550,000 and £800,000. In addition 3,815 parking spaces had been provided at a cost of £156,000 and another 1,807 spaces had been approved.

An Experiment in Slate Roofing

Modification of an Early 19th Century Method

A NEW METHOD of using Welsh slate as a roofing material is now being tried out by the Ministry of Works. If successful it could lead to savings in costs which, in turn, may help towards a revival of the slate industry. The scheme is in the nature of an experiment and its success depends upon the ability of the new method, which economises in the size and number of slates covering a given area, being as weather-resistant as clay or concrete tiles. The final outcome may not be determined, therefore, until the roof in question has been subjected to the elements for a few seasons.

The decision of the Ministry of Works to conduct the experiment was taken in view of the plight of the Welsh slate industry, which has been having a difficult time during the past years. Anything, it was felt, which would encourage a renewed interest in this natural building material could not be ignored and when, in the late autumn of 1958, a quarry owner first mooted the idea the Ministry's Welsh office recognised it as important enough to warrant investigation.

The system was first recorded as being a practical way of slating early in the 19th century. It was then said to have been adopted by James Wyatt, architect to George III. However, it was later abandoned as not being 100 per cent waterproof. During the recent discussions on its merits the Building Research Station, which was brought into consultation, was able to point out that the modern system benefited from the use of mastics in place of putty and that underfelt would help to overcome the earlier weaknesses.

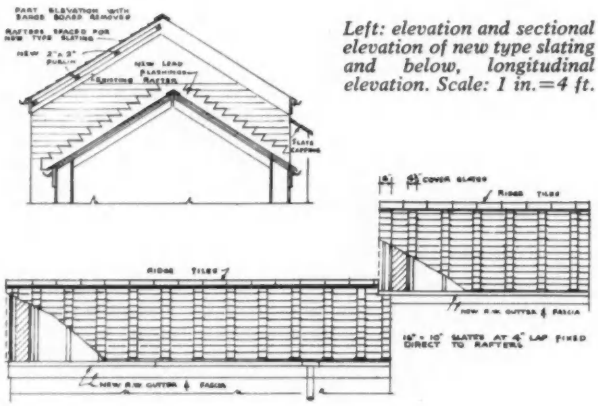
Meanwhile, a private housebuilder erecting his own bungalow adopted the system which may now be described as the Riley method, after the director of Caernarvonshire Crown Slate Quarries Ltd., who devised it. Ministry and Building Research Station officials visited the dwelling under construction early in 1960 and it was then that the decision was taken to go ahead with the Ministry's 'experiment.' It incorporates certain slight modifications to the original Riley method.

A number of outbuildings at HM Coastguard Station, Cemaes Bay, Anglesey were selected as suitable for the scheme, being in need of repair at the time. The scheme was put in hand in the last days of November, 1960 but work was then purposely suspended until mid-February to allow various interested parties, including the Ministry of Housing and Local Government, to visit the site and see work in progress.

Slates are set between rafters with a horizontal overlap only

Briefly, the system entails the use of slates smaller in size to those traditionally employed. They are set between and nailed to rafters which are overlaid with felt but not battened, and are given a horizontal overlap only. The intervening joints are sealed by mastic overlaid by narrow strips of slate which are, likewise, nailed to the rafters. Some of the existing boarding, battens and rafters have been retained in order to obtain comparative results; and, to enable the Building Research Station to make periodic inspections, a portion of the underfelt has been substituted by plastic sheet.

The size of slate required by the Riley method is 16 in. by 10 in. It is claimed that the comparable saving in costs with those where the traditional size 20 in. by 10 in. has been used, could be as high as 45 per cent.



Left: elevation and sectional elevation of new type slating and below, longitudinal elevation. Scale: 1 in.=4 ft.

E

Book Review

Concrete Formwork Designer's Handbook

CONCRETE FORMWORK DESIGNER'S HANDBOOK. By H. R. Gill. (London: Concrete Publications Ltd.) Price 15s. net.

THIS VOLUME is yet another in the useful series on reinforced concrete design and construction, precast concrete, and other aspects of work in which concrete plays a part. It deals fully with the structural design of the all-important formwork and gives complete solutions and examples of design and erection for all types of plain and reinforced concrete. The text is applicable to timber and steel: full information is given on the pressures exerted by concrete, and many cases of loading are dealt with by means of simplified formulae and by monograms, tables and other charts. These may be used for easy reference for the design of components of formwork or shuttering for vertical and inclined walls, beam-and-slab construction, dams, continuously-moving forms, and other structural elements.

Factors affecting the lateral pressure of fresh concrete against the formwork are given, as well as the permissible stresses for timber, plywood, and steel under numerous conditions. Each design aid is illustrated by the basic formula from which it is derived, and the formulae derivations themselves are given in an appendix. This leaves the practical parts of the volume completely free from theoretical analysis. The cases illustrated are based upon the more common arrangement of members, and although the value of this work has been proved by its application to structures of various types by the staff of a well-known civil engineering company, for whom it was originally written, reference must be made to other sources for practical details of good formwork, especially for more complicated structures. It is an excellent handbook which is quite adequate for most general work.

A Lighthouse in Jamaica

Construction Based on Pre-cast Concrete Culvert Pipes

A READER in Kingston, Jamaica, Mr. R. P. Rubie, occupying the official post of Ag. Chief Planning Engineer, Officer i/c Lighthouses, in the Jamaica Public Works Department, sends us the following details of the construction, at a cost of only some £2,000, of a small lighthouse in the island. Mr. Rubie writes:

In January, 1958, I designed a small lighthouse tower at Galina Point on the north coast of Jamaica using standard pre-cast concrete culvert pipes, construction of which began on January 21, 1958, and was completed in nine weeks, using a labour force of four men, except on seven days when a concrete mixing gang was employed.

Although the height of my tower was only 40 ft. and the heaviest pipe weighed only 2½ tons, the difficulty of handling and positioning the pipes accurately with the equipment at my disposal would have been insuperable had I not hit on the following method: Three 1 in. dia. holes were drilled through the wall of each pipe 120° apart and 1 ft. from the top. A ¾ in. steel rope with a turnbuckle was then passed through each hole from the inside and a clip placed on it outside the pipe. The other end of the rope was attached to the lifting block, the pipe raised just off the ground and levelled with the turnbuckle, then one man lifted it with the differential pulley block to the required height, pushed it across till it was vertically in position, and lowered it to the exact resting place.

The base pipes consist of two 5 ft. bore reinforced concrete pipes with 6 in. walls, each 4 ft. high, placed concentrically around two 2 ft. diameter pipes with 3 in. walls, all resting on RC footings cast on solid rock. Two 4 ft. pipes with 5 in. walls, also 4 ft. high from the next stage, then three 3 ft. pipes with 4 in. walls and three 2 ft. 3 in. pipes with 3½ in. walls bring the structure up to the required height of 39 ft., base to platform.

The 2 ft. pipes inside the 5 ft. pipes were placed so as to leave an annular space for housing gas accumulators in the base.

As each pipe was hoisted to its final position it was retained in place on the lifting rig until concrete was cast from half-way up the pipe below it to half its own height, steel dowels being placed at the plane of the joint overlap. The holes for the lifting wires were all aligned with the buttresses and ¾ in. steel bars left protruding from them till the buttresses could be cast.

In addition, old railway rails form a steel core to the structure and are the main reinforcement to the buttresses, where they go from bedrock through the centre 3 ft. dia. pipe to meet at a point inside it.

I chose this form of construction because less than three months were available for design and completion of work, no large skilled labour force could be recruited and concrete pipes, steel scaffolding and lifting gear were immediately available for their respective purposes.

A view of the completed lighthouse tower

The entire job cost just under £2,000, including the curved mahogany door to the accumulator room, railings of teak, an aluminium ladder, new piping, valves, etc. (but not a new lamp), demolition of the old tower and provision of an asphalted pathway with concrete kerb and channels. All wages and salaries (except mine) are included in this figure. Temporary water and electric power had to be provided.

Timber Properties and Corrosion

New TDA Publication

UNDER THIS HEADING Dr. V. R. Gray discusses the performance of timber (and individual timber species) in conditions of damp and exposure, atmospheric pollution and physical contact with corrosive liquids, and completes his study with a commentary on corrosion and staining which may occur when certain timbers are associated with metals.

Dr. Gray's paper, prepared in the first instance as a contribution to the Metallic Corrosion Handbook, has now been reproduced as Information Bulletin C/1B/4, which may be obtained from the Timber Development Association, 21 College Hill, London, EC4, price 3s. 6d. per copy. The advice he has to give is considered to be of practical interest to all concerned with the use of timber for bulk liquid containers, structures subject to chemical action, cooling towers and packing cases.

The author of 'Timber Properties and Corrosion' first deals with the durability of various timbers in relation to normal environmental influences and indicates a number of woods which are rated 'durable' or 'very durable' when exposed to agencies of decay.

In the next section of his paper Dr. Gray discusses timber's suitability for tanks and vats containing acids and salts which would corrode steel and concrete. Acid attack on wood, he states, is very slow, below about 25 per cent concentration of non-oxidising mineral acids or 60 per cent organic acids at room temperature. Higher concentrations, higher temperatures or alkaline solutions lead to some breakdown, but periods of several years may still be possible and breakdown products from wood are often less harmful than metallic corrosion products.

The author suggests that the best woods for acid resistance are those containing a high cellulose and lignin content. Softwoods in general fulfil this requirement but some hardwoods—teak and jarrah for instance—also meet it. He considers that low permeability to liquids is as important as acid resistance, since the rate of progress of attack depends on both. It follows that selection of softwood and hardwood for liquid containers must be directed towards the elimination of more permeable sapwood. External painting of vats is discouraged as it permits build-up of moisture and possible premature decay.

Dr. Gray goes on to state that the following liquids, among others, may be satisfactorily stored in wooden vessels: solutions of salts of weak bases such as aluminium, ammonium and iron, copper sulphate, potassium salt solutions, alcoholic liquids, hydrocarbons, formaldehyde, concrete and synthetic polymer latices.

'Alkalis attack wood more readily than acids,' the author explains, 'and such materials as domestic washing solutions attack the lignin in the wood. For this reason scrubbing of timber floors, furniture and draining boards with too much alkaline washing agent is to be avoided.'

In a section devoted to corrosive action derived from acids present in wood, Dr. Gray points out that dry timber rarely causes corrosion. Where plywood is concerned, corrosion at first thought to be due to the timber used, has been found on closer examination to have been caused by acid hardeners present in the glue line.

Turning to staining effects, the author lists a number of woods which show a tendency to stain in contact with iron. These include sweet chestnut and oak, rauli, coigue, afrormosia, elm, alder, idigbo, kapur, African mahogany, walnut, Rhodesian teak, gedu nohor, sapele, utile, Honduras cedar, ash, cherry, and katsura. 'Staining,' he observes, 'is often much more noticeable when the wood is acid, so that woods like Western red cedar, Douglas fir and sequoia which give a much lighter stain than oak are often observed to be stained.'

British Standards

Fibre Building Boards ; Copper and Zinc Rainwater Goods ; Glass for Signs ; Fire Extinguishers ; Carpenters' Squares

Revised Standard for Fibre Building Boards (BS1142: 1961)

WITH the present-day need for rapid building methods and effective thermal insulation and sound control, the revision of BS 1142, 'Fibre building boards' is timely.

The new edition of this British Standard (price 6s.) is in step with modern production techniques and, as far as possible, with international practice. The discussions of a Technical Committee of the International Organisation for Standardisation (ISO) which is studying fibre building board, have been taken into account.

As in the previous edition, dimensions, quality requirements and tests are specified for the following types of fibre building board: insulating board, bitumen-bonded insulating board, homogeneous fibre wallboard, laminated fibre wallboard, medium hardboard, standard hardboard and tempered hardboard. It says much for the previous edition that the changes made, though important, are few.

Definitions have been brought up to date, to take account of developments in manufacturing techniques, and the definition of fibre building board follows a draft ISO recommendation. The minimum densities of standard hardboard and tempered hardboard have been increased, as have the mean breaking loads and moduli of rupture of insulating board, standard hardboard and tempered hardboard.

The drying temperature in the thermal conductivity test has been reduced to conform to international practice.

It is made clear that boards may, if the supplier wishes, be marked to indicate that they comply with the standard and the requirements for marking flame-retardant boards have been made more specific.

Wrought Copper and Wrought Zinc Rainwater Goods (BS 1431: 1960)

THIS BRITISH STANDARD (price 6s.), which deals with gutters and other rainwater goods of copper and zinc, has been revised so that it is as far as possible similar in form to the recently revised BS 2997 for aluminium rainwater goods.

The publication covers half-round, rectangular and OG gutters, and round and rectangular down-pipes and suitable accessories in a range of nominal sizes: 3 in., 4 in., 4½ in. and 5 in. for gutters and 2 in. 2½ in., 3 in. and 4 in. for pipes.

There is also an appendix which contains recommendations concerning the selection and fixing of gutters and pipes and deals with suitable gutter brackets.

Glass for Signs and Recommendations on Glazing for Signs (BS 3275: 1960)

THROUGHOUT this new publication the emphasis is on performance of the glass and especially safety of the public. It is recommended, for example, that safety glass (either toughened or laminated) should be used ; if, for technical reasons, it is necessary to use annealed glass, then it should be protected by a panel of toughened or wired glass. The standard (price 3s.) is in two sections : the first specifies requirements for quality and marking of glass for box signs and panel signs, including toughened and laminated glass ; and the second makes recommendations for the use of glass in these signs, including glazing, fixing, strength of supporting materials, and ventilation.

Portable Carbon Dioxide Fire Extinguishers (BS 3326: 1960)

IN POWER STATIONS, in aircraft and wherever there is a risk of electrical fire, carbon dioxide fire extinguishers are valuable fire-fighting aids. They can, however, be dangerous or ineffective if they are badly made. This new British Standard (price 4s.) lays down essential requirements for the performance and construction of the portable models of this type of extinguisher and contains an important clause, requiring the valve or operating head to have a safety release incorporating an anti-recoil device. The extinguishers dealt with range from those of 2 lb. capacity to those of 15 lb. capacity. Only two filling ratios are given—one for temperate and tropical conditions and one for arctic conditions—as it is felt that an intermediate filling is now exceptional. This may, however, still be obtained when ordered.

Carpenters' Squares and Bevels (BS 3299: 1960)

THIS is the latest addition to a growing range of British Standards relating to hand tools. Appearing on the market at the present time are various British and foreign makes of carpenters' squares and bevels, some of which are of the lowest quality because of poor materials, doubtful construction and even more doubtful accuracy. The purchaser of such a low grade bevel or square is often left with no redress because the manufacturer cannot be traced—having conveniently omitted to place an identifying mark on the tool.

Purchasers can be sure, however, that squares and bevels complying with this new British Standard (price 4s., 6d.) have been manufactured from high grade materials which have proved eminently satisfactory over the years and which are those demanded by the skilled artisan. They can also be certain that the blades of the tools have been heat-treated in order to ensure excellent wear. In addition, the standard lays down requirements controlling construction, finish, dimensions and a high degree of accuracy.

The standard demands that squares and bevels shall be indelibly marked with the manufacturer's or supplier's name or trademark and so that craftsmen (and the do-it-yourself amateur) can recognise a sound, long-lasting tool capable of giving the most accurate service, tools complying with the standard may be marked 'BS 3322' and the BSI Kite-mark may also appear, if the manufacturer is licensed to use it. (The presence of the Kite-mark on a product shows that BSI inspectors have tested that product and are satisfied that it is up to standard.)

Copies of these standards may be obtained from the British Standards Institution, Sales Branch, 2 Park-street, London, W1.

A perspective by John Landsell of the proposed new Dental School and Students' Amenity Block which are to be built in Stepney-way for the London Hospital and London Hospital Medical College. The architects are Messrs. Sydney Clough, Son & Partners, Devonshire-close, 39 Devonshire-street, W1; the quantity surveyors, Messrs. Gleeds, 106 Regent-street, W1; the structural engineers, Messrs. John Liversedge & Associates, 42 Portland-place, W1; and the consulting engineers, Messrs. Oscar Faber & Partners, 29 Queen Anne-street, W1. It is expected that work will commence at the end of October next

THE BUILDER CURRENT PRICES

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. It is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	5	5
Pit Sand	,,	1	3	8
Washed Sand	,,	1	6	9
¾ in. Shingle	,,	1	4	3
¾ in. Broken Brick	,,	1	0	9
Pan Breeze	,,	1	1	6
Fine or Coarse Foamed Slag Aggregate (2 yds. of fine and 2.6 yds. of coarse per ton.)	per ton	3	8	0

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area.				
6-ton loads and upwards, site	per ton	5	12	0
1 to 6 tons, site	,,	6	4	0
Rapid-Hardening Cement in 6-ton loads and upwards to site	,,	6	2	6
1 to 6 tons do. site	,,	6	14	6
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.				
Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices.				
Red, Buff or Khaki Colorcrete in 6-ton lots	,,	8	12	0
Other colours according to colour.				
In 4-ton lots from 310s. 0d. to 708s. 0d. per ton.				
White Portland Cement	,,	13	17	6
Under 1 ton	per cwt.		16	11
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards	per ton	7	4	6
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £11 10s.0d. to £14 5s.0d. (1-ton loads and upwards).				
Ciment Fondu and Lightning Brands High Aluminous cement, 6-ton lots and up	,,	15	14	6
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	,,	6	19	0
Stourbridge Fireclay, 6-ton loads (London sites)	,,	7	7	0
Moler Mortar Powder for Flue Bricks (London sites)	per cwt.	1	6	0

BRICKS

Full Loads		£	s.	d.
First Hard Stocks	per 1,000	16	19	6
Second Hard Stocks	,,	14	18	6
Mild Stocks (Kiln Burnt)	,,	11	5	0
Mild Stocks	,,	11	0	0
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2½ in. Nominal Fletton Bricks to sites in W.C. district :				
Commons	,,	6	12	0
Cellular Commons	,,	6	12	0
Keyed do.	,,	6	14	0
Rustics	,,	8	12	0
Cellular Rustics	,,	8	12	0
Single Bullnose Commons	,,	8	14	6
Sandfaced	,,	9	12	0
Tuscans	,,	10	7	0
Saxons	,,	10	15	0
Golden Buffs	,,	11	2	0
Dapple Light Facings	,,	11	9	6
Heather Facings	,,	11	5	0
Best Blue Pressed Staffs (London sites)	,,	33	4	9
do. Bullnose (London sites)	,,	34	3	9
Blue Wire Cuts (London sites)	,,	29	9	6
Midhurst Lime Bricks (London sites)	,,	11	13	0
Uxbridge Whites (London sites)	,,	11	8	6
Special Purpose Sandlime Bricks (London sites)	,,	8	12	0
Best Stourbridge Fire Bricks :				
2½ in. (London stations)	,,	30	12	3
2½ in. (London sites)	,,	31	1	0
3 in. (London stations)	per 1,000	36	14	9
3 in. (London sites)	,,	37	5	3
2¾ in. Moler Flue Bricks (London sites)	,,	31	0	0
2½ in. Machine-made Sandfaced Red Facings (London sites)	,,	18	16	6
2½ in. Machine-made Multi Red Facings (London sites)	,,	19	1	6
2½ in. Hand-made Sandfaced Red Facings (London sites)	,,	20	7	6
2½ in. Hand-made Sandfaced Multi-Colour Facings (London sites)	,,	20	7	6
Hand-made Sandfaced Cherry Red Facings, Berkshire district (London sites)	,,	21	5	0
Hand-made Sandfaced Multi-Colour Facings, Berkshire district (London sites)	,,	21	5	0
Rubber Bricks for gauged arches (London sites)	,,	52	5	0
2½ in. Surrey Clamp Burnt Multi Stock Facings (London sites)	,,	16	15	0
2½ in. Surrey Kiln Burnt Multi Stock Facings (London sites)	,,	17	7	0
Glazed Bricks (London sites), White, Ivory, Brown:				
Stretchers	,,	64	0	0
Headers	,,	63	0	0
Quoins, Bullnose and 4½ in. Flats	,,	80	0	0
Double Stretchers	,,	85	0	0
Double Headers	,,	77	10	0
One side and two ends	,,	87	0	0
Two sides and one end	,,	89	10	0
Splays and Squints	,,	83	0	0
Cream and Buff, £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 47½% for Best quality and plus 47½% less 10% for Second quality.				

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District).

HOLLOW CLAY PARTITION BLOCKS (Keyed)

Minimum lorry loads

		£	s.	d.
*2½ in. 140 yds.	per yd. sup.		4	7

BUILDING BLOCKS (Keyed)

		£	s.	d.
*3 in. (6 cavity) 110 yds.	,,		5	9
*4 in. (6 cavity) 90 yds.	,,		7	3
6 in. (8¾ in. × 5¾ in.) 1,250 blocks	per 1,000	28	9	0

* Half blocks at no extra charge.

CLINKER CONCRETE

		£	s.	d.
2 in. 100 yds.	per yd. sup.		3	11
2½ in. 85 yds.	,,		4	6
3 in. 75 yds.	,,		5	6
4 in. 55 yds.	,,		6	11

CRANHAM TERRA COTTA

		£	s.	d.
2 in.	,,		7	5
2½ in.	,,		8	4
3 in. Load bearing quality	,,		9	6
4 in. do. do	,,		11	6

MOLER PARTITION BLOCKS

		£	s.	d.
2 in. 150 yds.	,,		12	9
2½ in. 120 yds.	,,		13	9
3 in. 100 yds.	,,		14	9
4 in. 90 yds.	,,		17	0

LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE

		£	s.	d.
2 in. 100 yds.	per yd. sup.		5	4
2½ in. 80 yds.	,,		6	5
3 in. 65 yds.	,,		7	5
4 in. 50 yds.	,,		9	4
4½ in. 44 yds.	,,		10	2
6 in. 33 yds.	,,		14	5

THERMALITE-YTONG PARTITION BLOCKS

		£	s.	d.
2½ in. 144 yds.	,,		7	0

THERMALITE-YTONG LOAD-BEARING INSULATING BLOCKS

		£	s.	d.
3 in. 120 yds.	per yd. sup.		8	5
4 in. 90 yds.	,,		11	0
5 in. 72 yds.	,,		13	9
6 in. 60 yds.	,,		16	6
8½ in. 42 yds.	,,	1	3	8

FLOOR BLOCKS AND FILLER TILES

		£	s.	d.
Floor Blocks 12 in. × 12 in. delivered in full lorry-loads :				
3 in.	per 1,000	35	14	0
4 in.	,,	38	9	0
5 in.	,,	46	1	0
6 in.	,,	52	12	0
7 in.	,,	64	12	0
8 in.	,,	75	9	0
9 in.	,,	83	2	0
10 in.	,,	92	0	0
Filler Tiles in multiples of 10 tiles per 1,000 multiples :				
12 in. × 3 in. × ⅝ in.	,,	43	13	0
12 in. × 4 in. × ⅝ in.	,,	75	7	0
10 in. × 5 in. × ⅝ in.	,,	75	7	0

STONEWARE DRAIN PIPES, etc.

Glazed Stoneware Standard List (November, 1956).

		4 in.	6 in.	9 in.
Pipes, 2 ft. lengths	per ft.	1/8	2/6	4/6
Bends	each	5/–	7/6	20/3
Junctions	„	8/4	12/6	27/–
Gullies with 4 in. outlets	„	12/6	13/9	22/6

The following are the percentages to be added to the Standard List (November, 1956) prices delivered London Area.
Delivered ex Merchants Wharf or Depot.

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
Best Quality	– 5%	+15%	+20%
BSS Best Quality	+10 % – 5%	+10 %+15%	+10 %+ 20 %
Tested Quality	+37½% – 5%	+37½%+15%	+37½%+ 20 %
BSS Tested Quality	+47½% – 5%	+47½%+15%	+47½%+ 20 %

		£ s. d.
3 in. Land Drain Pipes (in 12 in. lengths)	per 1,000	12 10 6
4 in. do. do.	„	16 16 0
6 in. do. do.	„	34 10 0
9 in. do. do.	„	64 19 0

DAMP COURSE

		£ s. d.
Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area	per yd. sup.	3 5
Asbestos base do. 7 lb. per yd. sup.	do. do. „	5 2
Lead lined bitumen do. 9½ lb. per yd. sup.	do. do. „	12 2
18 in. × 9 in. British damp course slates	per 1,000	43 8 11
14 in. × 9 in. do. do.	„	32 8 2
9 in. × 9 in. do. do.	„	18 18 9
18 in. × 4½ in. do. do.	„	19 19 9
14 in. × 4½ in. do. do.	„	15 18 3
9 in. × 4½ in. do. do.	„	10 14 3

STONE

		£ s. d.
Bath Stone		
Monks Park	per ft. cube	10 3
St. Aldhelm Box Ground	„	11 6
Delivered in railway trucks at South Lambeth B.R. Western Region.		
Doulting Stone Random Blocks. Delivered London area	„	10 10
Beer Stone. Delivered London area	„	10 6
Portland Stone—		
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region	„	9 10
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots.		
9 in. × 3 in. Rubbed, weathered, throated and stolled cills	per ft. cube	4 5 10
2 in. × 6 in. do. do. do.	„	3 1 2
12 in. × 3 in. Plain coping, twice throated	„	2 7 6
2 in × 3 in. Weathered and twice throated coping	„	3 3 3
4 in. × 6 in. do. do. do.	„	2 17 0
4½ in. × 9 in. Plinth rubbed on top and face	„	2 11 0
3 in. sawn two sides Slabs, random sizes	per ft. sup.	9 1
emplates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork	per ft. cube	1 11 3
do. do. fair one edge for fair faced brickwork	„	1 17 0
Hard York—		
12 in. × 2 in. Square Steps, rubbed on top and edge	per ft. run	11 0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2 18 3
12 in. × 6 in. Plain Steps, rubbed top and front	„	2 11 0
2 in. Rubbed and Jointed Paving, given sizes	per ft. sup.	10 3
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup.	3 12 0

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000.

	£ s. d.
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	35 16 6
Hand-made Pantiles Berkshire district	64 10 0
Hand-made Double Roman Bridgwater district	78 2 9
Hand-made 10½ × 6½ tiles Berkshire district	18 0 0
Machine-made 10½ × 6½ Staffordshire district	17 0 0
Hand-made Hip and Valley tiles per doz.	1 13 0
Machine-made Hip and Valley tiles do.	1 12 0
Concrete tiles 10½ × 6½	8 10 0
do. Interlocking (49S)	19 16 6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate station. Per 1,000 actual.

	£ s. d.
24 × 12	155 10 0
22 × 12	123 10 0
22 × 11	111 10 0
20 × 12	104 10 0
20 × 10	102 0 0
18 × 10	69 10 0
18 × 9	61 0 0
16 × 10	54 8 10
16 × 8	42 12 4

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

		Ex Wharf	per	£ s. d.
Softwood				
Joinery quality		do.	standard	£115 to £140
Carcassing quality		do.	„	£94 — £98
1 in. Tongued and Grooved Flooring		do.	„	£110 0 0
Hardwood				£ s. d.
Mahogany—	African S.E.	do.	per ft. cube	1 10 0
do.	Honduras S.E.	do.	„	3 5 0
Oak	European S.E.	do.	„	2 10 0
do.	Japanese S.E.	do.	„	3 0 0
do.	English Logs sawn	do.	„	2 0 0
Teak	8 in. average S.E.	do.	„	3 17 6
Walnut	African Logs sawn	do.	„	1 2 6
Plywood			per	
6 mm. (¼ in.) Birch Plywood B/BB			100 sq. ft.	4 4 6
6 mm. Israeli Gaboon do. B/BB exterior grade WBP (AX100)			„	4 5 3
18 mm. Birch Blockboard			„	9 10 0
¾ in. Douglas Fir Plywood 96 in. × 48 in. Exterior grade WPB (AX100) solid two sides			„	9 11 0

DOORS (in Lots I-II)

Delivered London area.

	£ s. d.
1¾ in. 4 Horizontal Panel. Pattern 4 in. deal	
2 ft. 0 in. × 6 ft. 6 in.	each 1 16 0
2 ft. 3 in. × 6 ft. 6 in.	„ 1 17 6
2 ft. 6 in. × 6 ft. 6 in.	„ 1 18 6
2 ft. 9 in. × 6 ft. 6 in.	„ 2 0 6
2 in. do. but top panel open. Pattern 4 × G in deal	
2 ft. 6 in. × 6 ft. 6 in.	„ 2 9 0
2 ft. 9 in. × 6 ft. 6 in.	„ 2 11 6
2 in. 2 Panel top panel open. Pattern 2 × G in deal	
2 ft. 6 in. × 6 ft. 6 in.	„ 2 3 0
2 ft. 9 in. × 6 ft. 6 in.	„ 2 5 0
1¾ in. Plywood Faced Flush Doors to BS459, Part 2A	
2 ft. 0 in. × 6 ft. 0 in.	„ 1 12 3
2 ft. 0 in. × 6 ft. 6 in.	„ 1 12 3
2 ft. 3 in. × 6 ft. 6 in.	„ 1 13 9
2 ft. 6 in. × 6 ft. 6 in.	„ 1 15 3
2 ft. 9 in. × 6 ft. 6 in.	„ 1 18 0
1¾ in. Hardboard Faced Flush Doors	
2 ft. 0 in. × 6 ft. 0 in.	„ 1 5 6
2 ft. 0 in. × 6 ft. 6 in.	„ 1 6 0
2 ft. 3 in. × 6 ft. 6 in.	„ 1 6 6
2 ft. 6 in. × 6 ft. 6 in.	„ 1 8 6
2 ft. 9 in. × 6 ft. 6 in.	„ 1 9 6

SUNDRIES

Delivered London area.

		£ s. d.
1 in. Wood Wool Slabs 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton)	per yd.	6 2
1½ in. do. (67 yds. to 1 ton)	„	8 0
2 in. do. (52 yds. to 1 ton)	„	9 9½
2½ in. do. (45 yds. to 1 ton)	„	11 3
3 in. do. (39 yds. to 1 ton)	„	12 7½
Quantities under 1 ton add 1d. per ½ in. of thickness		
½ in. imported or home produced insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2 2 6
⅛ in. Hardboard do.	„	1 17 6
5/16 in. do. do.	„	2 4 6
2 in. Compressed Straw Slabs, roofing quality. 6 ft., 8 ft., 9 ft., 10 ft., and 12 ft. × 4 ft.		
50–100 yds.	per yd. sup.	11 4
101–250 yds.	„	10 10
251–750 yds.	„	10 1
Over 750 yds.	„	9 4
2 in. do. for partitions 4d. per yd. cheaper.		
7/16 in. Asbestos Flat Building Sheets	„	4 3½
½ in. do. do. do.	„	6 0
Roofing Felt 1-ply	„	1 9
do. 2-ply	„	2 2½
Best Scotch Glue in slabs	per ½ cwt.	5 8 0
do. pearl	„	5 8 0
Croid Glue	28 lb.	2 6 0
Impact Adhesive	per gall.	2 12 0
Cut Nails 3 in. (1-ton lots)	per ton	81 10 0
do. 4 in. and up (1-ton lots)	„	78 0 0
Wire Nails 3 in. (4-cwt. lots)	per cwt.	3 19 2
do. 4 in. and up (4-cwt. lots)	„	3 16 6

METALS

STEEL JOISTS, ETC.

		£ s. d.
Basis Joists— 6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in., plain cut to lengths delivered London area	per ton	47 15 0
Extra for sizes		
3 in. × 1½ in. 4 in. × 1½ in.	„	3 10 0
3 in. × 3 in.	„	2 10 0
4 in. × 3 in.	„	2 5 0
10 in. × 4½ in.	„	1 10 0
5 in. × 2½ in. 5 in. × 3 in.	„	1 15 0
4½ in. × 1¾ in.	„	3 5 0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in.	„	15 0
6 in. × 3 in. 24 in. × 7½ in.	„	2 0 0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in.	„	1 5 0
9 in. × 4 in. 10 in. × 5 in.		
12 in. × 5 in. 22 in. × 7 in.	„	1 0 0

METALS—*continued*

	£ s. d.
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in. / 14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in. / 15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. / 16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in. — per ton	10 0
18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in. — ,,	10 0
Steel angles average price ... ... ,,	48 15 0
Steel tees average price ... ... ,,	49 15 0
Fabricated work delivered London—	
R.S. Joists cut and fitted... ... ... ,,	67 19 0
Compound girders... ... ... ,,	72 14 3
Stanchions ... ... ,,	78 9 9
Compound stanchions ... ... ,,	83 4 3
In Roof Work—Trusses and Purlins ... ... ,,	93 19 6
Average prices not for awkward work.	
Angle cleats and ⅝ in., ¾ in. and ⅞ in. bolts average price London area ... ... per cwt.	5 10 0

Ferro-Concrete Bars and Fabric

Mild Steel Ferro-Concrete Bars British manufacture to BSS 785 ex. Mills. 1 in. diameter and upwards delivered nearest London station ... per ton	40 10 0
do. do. ex. London Stock do. delivered London site ... ... ,,	49 10 0
Extras—	
¼ in. diam.... ... ... per ton extra	8 12 6
⅜ in. do. ... ... ,,	6 12 6
½ in. do. ... ... ,,	4 12 6
⅝ in. do. ... ... ,,	3 2 6
¾ in. do. ... ... ,,	1 10 0
⅞ in. and 1 in. diam. ... ... ,,	15 0
Steel wire mesh reinforcing fabric to BSS 1221A.	
Ref. No. 106 ... ... 7.88 lbs. ... ... per sq. yd.	5 2
,, ,, 109 ... ... 4.71 ,, ... ,,	3 0⅝
,, ,, 113 ... ... 1.83 ,, ... ,,	1 8⅝
,, ,, 122 ... ... 7.32 ,, ... ,,	4 10½
,, ,, 125 ... ... 4.32 ,, ... ,,	2 10½

Mild Steel Tubes

Tubes to BSS 1387. Fittings BSS 1740.

Basic List Prices

	¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Tubes ... ... per ft.	9¾	10	1/–	1/2½	1/9	2/3	2/8	2/9
Bends ... ... each	1/7	1/9	2/–	2/6	3/8	5/5	6/2	10/7
Elbows, square ,,	1/8	1/10	2/2	2/6	3/–	4/4	5/2	8/6
do. round ,,	1/10	2/–	2/4	2/10	3/4	4/8	5/8	9/4
Tees ... ... ,,	2/–	2/2	2/6	3/2	3/8	5/–	6/2	10/2
Crosses... ... ,,	4/4	4/8	5/6	6/6	8/2	11/–	13/2	21/–
Sockets, Plain ,,	6	6	8	10	1/–	1/4	1/9	2/6
do. Diminished ,,	8	10	1/–	1/2	1/6	2/–	2/8	4/–
Backnuts ... ,,	4	4	6	7	10	1/–	1/4	2/2

Malleable Fittings

	¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Elbows, round each	8½	8½	9½	1/2½	1/8½	2/7¼	3/6	5/–
Tees ... ... ,,	9½	9½	1/–	1/4½	2/–	2/9½	4/–	5/6
Crosses... ... ,,	1/2½	1/2½	1/4½	2/–	2/9½	3/7½	5/2½	7/2½
Sockets... ... ,,	5¾	5¾	7	9½	1/–	1/7½	2/2½	3/1½
Backnuts ... ,,	3	3	3½	4½	5¾	7¾	10¼	1/5¼

Discounts from List prices as follows :—

Galvanised Tube—

	Under 1 ton	Over 1 ton
Light	−38½%	−40 %
Medium	−34½%	−36 %
Heavy	−26½%	−28½%
Black—		
Light	−49 %	−50⅜%
Medium	−45 %	−46½%
Heavy	−37½%	−39 %

W.I. Fittings

Light	−25½%
Heavy	−21½%

Malleable Fittings

Malleable List −14% + 40%

C.I. Half-Round Gutters

Delivered London per yd. in 6 ft. lengths.

	Gutters	Nozzles	Stop Ends
3 in.	4/2½	3/9	1/1
3½ in.	4/7	4/1	1/1
4 in.	5/11	4/7	1/7
4½ in.	6/6	5/1	1/11
5 in.	7/3	5/6	2/3

C.I.O.G. Gutters

Per yd. in 6-ft. lengths :	Gutters	Nozzles	Stop Ends
3 in.	5/5	4/11	1/3
3½ in.	6/–½	4/11	1/7
4 in.	6/8½	5/1	1/11
4½ in.	7/3	5/10	2/3
5 in.	7/11	6/8	2/7

C.I. Rain-Water Pipes

	Pipes	Bends	Branches
2 in.	8/11½	4/7	6/7
2½ in.	8/11½	5/1	8/10
3 in.	10/1	6/5	9/7
3½ in.	11/6	7/7	11/6
4 in.	13/3½	9/2	13/7

L.C.C. Coated Soil Pipes

2 in.	10/2½	7/10	9/7
2½ in.	10/9	8/9	11/11
3 in.	12/1	9/7	14/2
3½ in.	13/6	11/11	16/6
4 in.	15/4½	13/4	19/5

Above prices for gutters, rain-water and soil pipes for under 5-cwt. lots only. Lots over 5 cwt. see List No. 3300, dated February 1, 1955, plus 27½% and tonnage allowance. 4-ton lots 5%, 2-ton lots 2½%.

L.C.C. Coated Drain Pipes

	£ s. d.
4 in. diameter in 9 ft. lengths ... ... per yd. run	1 11 1
6 in. do. do. ... ... ,,	2 5 6
4 in. diameter bends ... ... each	19 9
6 in. do. do. ... ... ,,	2 12 8
4 in. diameter branches ... ... ,,	1 15 1
6 in. do. do. ... ... ,,	4 4 2

Above prices for any quantity but under 5 cwt. carriage extra.

Pitch Fibre Drain Pipes

	£ s. d.
2 in. diameter in 5 ft., 5 ft. 6 in. or 8 ft. lengths including couplings ... ... per ft. run	1 6½
3 in. do. ... ... ,,	1 10½
4 in. do. ... ... ,,	2 6
5 in. do. ... ... ,,	4 1½
6 in. do. ... ... ,,	5 0½
4 in. diameter short radius ¼ bends ... ... each	17 9
4 in. do. do. ⅛ bends ... ... ,,	12 11
2 in. diameter 6 ft. radius bends (5 ft. lengths) ,,	16 2
3 in. do. do. do. ,,	19 8
4 in. do. do. do. ,,	1 7 4
5 in. do. do. do. ,,	2 4 0
6 in. do. do. do. ,,	2 14 6

Above prices for loads of £60 and over.
Loads £25 to £59 19s. 11d. Plus 10%
Loads under £25 ... Plus 15%

Asbestos Rain-Water Pipes and Fittings

All less 17½% discount.

	2 in.	2½ in.	3 in.	4 in.
Pipes, 6 ft. lengths ... ... per yd.	4/7	4/10½	5/11	7/10
Shoes ... ... each	3/–	3/3	3/10	5/2
Single Branches ... ... ,,	4/8	5/6	6/7	9/2
Bends, square or obtuse ... ,,	3/3	3/7	4/8	6/7
Swan Necks, 4½ in. proj. ... ,,	3/7	4/8	5/2	7/3
do. 6 in. do. ... ,,	3/10	5/2	5/10	7/10

Asbestos O.G. Gutters and Fittings

	4 in.	4½ in.	5 in.	6 in.
Gutters, 6 ft. lengths ... per yd.	4/4	4/9½	5/9	6/10½
Drop ends ... ... each	3/6	4/–	4/9	5/5
Stop ends ... ... ,,	1/1	1/2	1/3	1/5
Angles ... ... ,,	3/7	4/1	5/–	5/10
Nozzles ... ... ,,	3/6	4/–	4/9	5/–
Union Clips ... ... ,,	1/9	2/1	2/6	2/11

Asbestos Half-Round Gutters and Fittings

	per	3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters, 6 ft. lengths	yd.	3/0½	3/7½	3/8½	4/4½	6/1
Drop ends	each	2/6	3/–	3/3	3/7	5/2
Stop ends	,,	1/–	1/1	1/2	1/3	1/5
Angles	,,	2/10	3/3	3/7	3/10	5/2
Nozzles	,,	2/6	3/–	3/3	3/7	5/2
Union Clips	,,	1/3	1/4	1/5	1/7	2/5

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	52 17 6
Mild Steel Bars	47 8 6
Mild Steel Hoops	49 0 0

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	62 7 6
24 gauge	64 17 6
26 gauge	67 17 6
Galvanised Corrugated Sheets, 6-ft. to 9-ft.—	
20 gauge	70 18 0
24 gauge	74 8 0
26 gauge	79 13 0
Galvanised Flat Sheets C.R. and C.A.—	
20 gauge	72 8 0
24 gauge	75 18 0
26 gauge	81 3 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base Prices)	£ s. d.
Sheet BS 1740 S1C 18 SWG (36 in. wide)... ... per lb.	3 0½
Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide) ,,	2 11½
Coiled strip BS 1470 S1C 18 SWG (24 in. wide) ,,	2 11½
Coiled strip BS 1470 NS3 Utility 18 SWG (24 in. wide)... ... ... ,,	2 11
Coiled strip, high purity, 22 SWG (12 in. wide) ,,	3 2
Corrugated sheet BS 1470 NS3 Circular Profile 8 ft. × 32 in. × 20 SWG ... ... per sheet	1 14 1
Corrugated sheet BS 1470 NS3 Industrial Profile 8 ft. × 31¾ in. × 20 SWG ... ... ,,	1 19 10
Corrugated sheet BS 1470 NS3 Mansard Profile 8 ft. × 31¾ in. × 20 SWG ... ... ,,	1 13 1
Extruded section BS 1476 E1C simple moulding per lb.	2 10½
Extruded section BS 1476 E1C 1 in. diam. round ,,	2 8
Extruded section BS 1476 HE19WP simple angle ,,	3 2
Extruded section BS 1476 HE19WP 1 in. diam. round ... ... ,,	3 1
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG ... ,,	4 8
Tubing BS 1471 HT19WP 1½ in. O/D × 20 SWG ,,	6 3

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

All per dozen	B.S.S. ¼ in.	⅜ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron...	87/–	128/–	—	—	—	—
Toilet bib cocks for iron ...	109/–	158/5	—	—	—	—

PLUMBERS' BRASS WORK, etc.—*continued*

All per dozen	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown stop cocks for iron	66/–	95/9	188/–	363/–	522/6	917/6
do. with two unions for lead	89/–	132/–	234/4	472/–	623/6	1,389/6
Double nut boiler screws ...	18/8	26/5	47/6	48/6	67/–	93/6
Heavy Croydon ball valves ...	77/–	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/–
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and Screws	33/–	40/8	59/6	92/5	118/10	155/3
Brass Sleeves	—	31/11	31/11	56/2	74/10	91/5
	1½×6 lb.		1½×6 lb.	2×7 lb.	3×7 lb.	
Lead P. trap with brass cleaning screws	68/6		85/6	137/–	233/9	
Lead S. trap do. do.	82/9		102/9	168/3	302/3	

Solder :			s.	d.
Plumbers' ...	1 cwt. lots	320/–	14 lb. lots per lb.	3	7
Tinmen's	,, ,,	404/–	,, ,, ,,	4	5
Blow pipe ...	,, ,,	407/–	,, ,, ,,	4	6

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 26½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 10 cwt.

	Extra d.	Total per lb. d.	Approx. per ft. d.
⅛ in.×19 gauge	16½	42⅜	11⅛
¼ in.×19 ,,	14⅜	40⅜	16
1 in.×18 ,,	12⅞	39⅜	24⅛
1¼ in.×18 ,,	12¼	38⅞	29½
1½ in.×18 ,,	12¼	38⅞	35⅞
2 in.×17 ,,	13⅛	40⅛	56½

Small Quantity extras :

10 cwts. to 5 cwts.	plus ½d. per lb.
5 cwts. to 2 cwts.	,, 1d. ,,
2 cwts. to 1 cwt.	,, 2d. ,,

	£	s.	d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	260	0	0

Zinc

		£	s.	d.
Sheet Zinc, 10 gauge (25 SWG), 5 cwt. lots upwards	per cwt.	7	15	3
,, ,, 12 gauge (23 SWG), ,, ,, ,,	,,	7	14	9
,, ,, 14 gauge (21 SWG), ,, ,, ,,	,,	7	13	6

Brass Tube

Brass tubes, basic price, plus gauge and manufacturing extras	per lb.		1	10

LEAD SHEET AND PIPES

Basis selling price to one address in London or Home Counties :

		£	s.	d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	104	15	0
,, Water Pipe, in coils	,,	107	0	0
Lead Soil Pipe, 10 ft. or over 2 in. to 4 in. in dia.	,,	108	10	0
,, ,, ,, over 4 in. dia.	,,	110	10	0
,, Gas or Untinned Compo pipe	,,	108	10	0

5 cwt. lots and over less 6d. per cwt. off basic prices.

Extras over Basis for quantities under 5 cwt. :

3 cwt. and under 5 cwt.	per cwt.	4	0
1 cwt. do. 3 cwt.	,,	6	0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipes to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected, £59 0s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£	s.	d.
Coarse Pink in 1-ton loads and over delivered on site	per ton	8	8	3
do. White do. do. do.	,,	8	17	9
Sirapite Coarse BSS 1191 Class C do.	,,	8	19	9
do. Fine do. do. do.	,,	9	7	6
do. Browning BSS 1191 Class B do.	,,	8	19	9
do. Board Finish do. do.	,,	8	19	9
Blue Lias Lime, in 6-ton loads	,,	6	14	6
Hydrated Lime (Grey) in 6-ton loads	,,	5	10	0
do. (White) do.	,,	6	0	0
Lump Lime (Grey) do.	,,	5	7	0
do. (White) do.	,,	5	14	6
White Keen's or Parian Cement, in 1-ton loads ...	,,	12	4	9
Pink Keen's or Parian Cement, in 1-ton loads ...	,,	11	19	6
Granite Chips, in 6-ton loads	,,	2	5	3
Hair	per cwt.	4	17	6
Gypsum Plaster Lath or Base Board, ⅜ in. thick, 600 yds. and over in one delivery. Delivered site	per yd.	2		2½
1,200 yds.	,,	2		1½
do. Insulating do. ⅜ in. thick, 600 yds. and over in one delivery. Delivered site	,,	2		8
1,200 yds.	,,	2		7
Gypsum Plaster Wall Boards, 3 and 4 ft. wide 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery. Delivered site	,,	2		5½
1,200 yds.	,,	2		4½
do. Insulating do. ⅜ in. thick, 600 yds. and over in one delivery. Delivered site	,,	2		11
1,200 yds.	,,	2		10

PAINTS AND DISTEMPER

Delivered London area.		£	s.	d.
Ceiling Distemper	per cwt.	1	7	6
Washable Distemper	,,	5	15	0
Gloss Paint	per gal.	2	16	0
Super Snowcem cement paint (in 1 cwt. drums) ...	per cwt.	5	0	0

Lead Products and Oils

		£	s.	d.
Ground White Lead, in 1 cwt. kegs	per cwt.	8	7	6
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins	per gal.	3	6	6
Genuine Red Lead, Dry, 1 cwt. keg (10 ton lots)	per cwt.	5	12	6
do. do. do. (1 cwt. lots)	,,	6	19	0
Genuine Linseed Oil Putty, 1 cwt. keg	,,	2	13	6
Size XD quality 28 lb.	per tin		9	0
Raw Linseed Oil (5 gal.) drums extra	per gal.		19	2
Boiled Linseed Oil (5 gal.) do.	,,	1	0	0

Sundries

Turpentine substitute (5 gal.) drums extra ...	,,	5	4⅜
do. do. (40 gal.) do.	,,	4	8⅝
Solignum, Brown (5 gal. cans) Exterior	,,	8	8
Creosote (40 gal. barrels)	,,	2	3
Paste Powder (1 lb. packets)	per lb.	2	4
White Lining Paper	per piece	1	2

VARNISHES, etc.

Delivered London area.		£	s.	d.
Oak Varnish, Outside or Inside	per gal.	2	0	0
Oak, Pale Copal do. do.	,,	2	0	0
Hard Drying Oak for Inside	,,	2	5	0
Crystal Paper Varnish do.	,,	2	8	0
Eggshell Flat Varnish do.	,,	2	2	0
Finest Carriage Varnish	,,	2	7	0
Front Door Varnish	,,	2	4	0
Japan Gold Size	,,	1	12	0
Black Japan	,,	1	16	0
Brunswick Black	,,	1	12	0
Berlin Black	,,	1	10	0
Terebene	,,	1	12	0
Knotting (1 gal. bottles free)	,,	1	15	0
French and Brush Polish (do.)	,,	1	15	0

GLASS

Delivered London area.

		s.	d.
18 oz. Sheet Glass Ordinary Glazing Quality—Cut Sizes	per ft. sup.		10
24 oz. do. do. do. do. do.	,,	1	0⅛
26 oz. do. do. do. do. do.	,,	1	3
32 oz. do. do. do. do. do.	,,	1	7½
⅛ in. Rolled Plate	,,	1	3⅝
3/16 in. Rolled and Rough Cast	,,	1	6⅛
¼ in. do. do.	,,	1	7½
⅛ in. Figured Rolled and Cathedral, Standard patterns—White Group 1	,,	1	3⅞
do. Group 2	,,	1	9¾
do. Standard Tints	,,	2	1½
do. Special Tints	,,	7	3
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating Group 3	,,	1	8½
⅛ in. Wired Cast	,,	1	10¾
⅛ in. Georgian Wired Cast	,,	1	11

Hollow Glass Blocks—

P.B.2 Cross reeded 5⅜×5⅜×3⅞ in.	each	3	9
P.B.3 Broad reeded 7½×7½×3⅞ in.	,,	5	9
P.B.32 Cross reeded 7½×7½×3⅞ in.	,,	5	9
P.B.4 Prismatic 7½×7½×3⅞ in.	,,	6	6
P.B.5 Flemish 7½×7½×3⅞ in.	,,	5	9
P.B.6 Boomerang 7¾×7¾×3⅞ in.	,,	6	6

Half Size Blocks—

P.B.32 Cross reeded 7¾×3¾×3⅞ in.	,,	4	10

Radiused Corner Blocks to match up with—

P.B.2 Cross reeded	,,	8	1
P.B.3 Broad reeded	,,	9	8
P.B.32 Cross reeded	,,	9	8

P.B.2, P.B.3, P.B.32 are also supplied in Light Diffusing Blocks at same price.

¼ in. Polished Plate Glass, G.G. quality—In plates not exceeding 2 ft. sup.	per ft. sup.	4	7
,, ,, ,, 5 ft. sup.	,,	5	7
,, ,, ,, 45 ft. sup.	,,	7	6
,, ,, ,, 100 ft. sup.	,,	7	6
¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality—Not exceeding 135 ft. sup. or 240 in. one way or 130 in. both ways ...	,,	11	4
Not exceeding 180 ft. sup. or do.	,,	15	0

Plates exceeding 180 ft. sup. prices on application.

Substances other than ¼ in. Polished Plate at Special Prices.

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass—	Minimum quantity	per ft. sup. s.	d.
18 oz. sheet O.Q.	3,000		7½
24 oz. ,, ,, ...	2,000		9½
26 oz. ,, ,, ...	2,000		11⅛
32 oz. ,, ,, ...	2,000	1	3½
⅛ in. Rolled Plate	1,000		10⅞
⅛ in. Figured Rolled and Cathedral Standard Patterns, White Group 1	1,000		10⅞
do. Group 2	1,000	1	2⅛
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte Group 3	1,000	1	2⅛
3/16 in. Rolled Plate or Rough Cast	2,000	1	2
¼ in. do. do.	2,000	1	2⅛
¼ in. Wired Cast, Hexagonal	2,000	1	5
¼ in. Georgian Wired Cast	2,000	1	5½

THE BUILDER RATES OF WAGES

AS FROM FEBRUARY 6th., 1961. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors)

1. Craftsmen and Labourers.

Region	Craftsmen	Labourers
	s. d.	s. d.
England & Wales (Grade A) ...	5 0	4 4½
London	5 1½	4 6
Liverpool and District ...	5 1½	4 6
Scotland... ...	5 0	4 4½

2. Apprentices.

Age	Per cent. of Craft Rate	London and Liverpool Dist.	England, Wales
		s. d.	s. d.
15	25	1 3½	1 3
16	33½	1 8½	1 8
17	50	2 6½	2 6
18	62½	3 2½	3 1½
19	75	3 10½	3 9
20	87½	4 6	4 4½

3. Young Male Labourers.

Age	Per cent. of Craft Rate	London and Liverpool Dist.	England, Wales and Scotland
		s. d.	s. d.
15	33½	1 6	1 5½
16	45	2 0½	1 11½
17	66½	3 0	2 11
18	100	4 6	4 4½

NORTHERN IRELAND is not included; rates fluctuate so much from district to district that reference should be made to local offices.
WATCHMEN.—The rates per shift for watchmen engaged on building sites is 27s. 6d. in London and Liverpool District, and 26s. 3d. in the provinces.
FEMALE OPERATIVES.—In all districts throughout the country except in Scotland the rate of wages for women, aged 19 and over, engaged in craft processes is 4s. 1½d. per hour. Women engaged on work other than craft processes, 3s. 9½d. per hour. In Scotland the rate for the woman craftsman is 4s. 4½d. after a probationary period, and the woman labourer, 3s. 10½d.

New Companies

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

GEORGE E. LOVE (DEVELOPMENTS) LTD.—Regd. Jan. 27, 1961. Bldrs., etc. Nom cap.: £10,000. Dir.: George E. Love, 9 St. Johns, Worcester.

T. W. NEWMAN & CO. LTD.—Regd. Jan. 27, 1961. Bldrs., etc. Nom. cap.: £1,000. Sub.: Geo. A. Crook, 51 Caversham-ave., N13 (coy. dir.).

SPRAYFLECK LTD.—Regd. Jan. 27, 1961. 293 London-rd., Hadleigh, Essex. Secy.: I. J. Martins. Bldrs., etc. Nom. cap.: £100.

DERLANA BUILDINGS LTD.—Regd. Jan. 30, 1961. 713 Imperial House, Kingsway, WC2. Secy.: Shirley Hart. Nom. cap.: £100.

DOWNSVIEW (BUILDERS) LTD.—Regd. Jan. 30, 1961. Nom. cap.: £100. Dir.: George E. Ferguson, 36 Bath-rd., Worthing.

C. TERRY (BULWELL) LTD.—Regd. Jan. 30, 1961. 122 Main-st., Bulwell, Notts. Secy.: Chas. V. Terry. Bldrs., contractors and decorators, etc. Nom. cap.: £1,000.

PETER CLARK (BUILDERS) LTD.—Regd. Jan. 30, 1961. Whitley-st., Bingley. Secy.: P. Clark. Nom. cap.: £5,000.

PERCY KING & CO. (BUILDERS) LTD.—Regd. Jan. 30, 1961. Quarry-la., Chichester, Sussex. Secy.: Lena L. McCavish. Nom. cap.: £5,000.

WILLIAM BELL & PARTNERS LTD.—Regd. Jan. 31, 1961. Thomas-st., Darlington. Dir.: E. Lawson. Bldrs., etc. Nom. cap.: £10,000.

FOSTER YATES AND KIRKHAM LTD.—Regd Jan. 31, 1961. 9 St. Christopher-cres., Scawsby. Secy.: Horace Foster. Blds. and contractors, etc. Nom. cap.: £500.

HOLBROOK & STONEY LTD.—Regd. Jan. 31, 1961. 6/7 Mansfield-pl., Hampstead, NW3. Secy.: Arthur F. Holbrook. Bldrs., etc. Nom. cap.: £500.

HAWKINS (LEONARD) LTD.—Regd. Jan. 31, 1961. 124 The Drive, Rickmansworth, Herts. Secy.: L. Hawkins. Bldrs., etc. Nom. cap.: £1,000.

RIVERSIDE BUILDING AND CONSTRUCTION CO. LTD.—Regd. Jan. 31, 1961. Nom. cap.: £100. Sub.: Philip & Son, Ltd., Dartmouth, Devon.

HAROLD NEWTON LTD.—Regd. Jan. 31, 1961. 104 Great Russell-st., WC1. Secy.: Doris E. Newton. Bldrs., painters, etc. Nom. cap.: £100.

T. H. REEVES (BUILDERS & CONTRACTORS) LTD.—Regd. Feb. 1, 1961. 82z Portland-pl., W1. Secy.: Mrs. M. F. Hillel. Nom. cap.: £100.

BOOTH SUPPLIES LTD.—Regd. Feb. 2, 1961. 53 Station-rd., Edgware, Mdx. Secy.: Derek Carter. Bldrs., etc. Nom. cap.: £100.

MOTTINGHAM CONSTRUCTION COMPANY LTD.—Regd. Feb. 2, 1961. 99 High-st., Eltham SE9. Secy.: Enid E. Foreman. Bldrs. Nom. cap.: £100.

A. R. JOHNSON (BUILDERS) LTD.—Regd. Feb. 2, 1961. 63 Lansdowne-pl., Hove, Sussex. Secy.: Yvonne U. Johnson. Nom. cap.: £100.

DODD CONSTRUCTION COMPANY LTD.—Regd. Feb. 2, 1961. 9 St. James-st., Dover. Secy.: R. Beech. Nom. cap.: £10,000

D. & J. BUILDERS (SHEPHERDS BUSH) LTD.—Regd. Feb. 2, 1961. 49 Upper Brook-st., W1. Secy.: Boston Registrars & Nominees Ltd. Nom. cap.: £100.

BOWCROSS CONSTRUCTION COMPANY LTD.—Regd. Feb. 2, 1961. 4 Vicarage-rd., Edgbaston, Birmingham 15. Secy.: C. H. Bowles. Nom. cap.: £5,000.

PETER BALLAM LTD.—Regd. Feb. 3, 1961. 161a Strand, WC2. Secy.: Eileen F. Ballam. Bldrs., etc. Nom. cap.: £1,000.

WRIGHTWAY CONSTRUCTION COMPANY (NORTH EASTERN) LTD.—Regd. Feb. 3, 1961. 55 Hylton-rd., Sunderland. Secy.: Kevin Docherty. Nom. cap.: £300.

GROUNDWORK CONSTRUCTION LTD.—Regd. Feb. 3, 1961. 17 Wilcox-rd., Sutton, Surrey. Secy.: T. A. Herbert. Bldrs. & contractors, etc. Nom. cap. £100.

TOWNSEND CONTRACTORS (MAIDSTONE) LTD.—Regd. Feb. 3, 1961. Lulworth, Maidstone-rd., Bridgewood, Rochester. Secy.: R. J. Lye. Nom. cap.: £5,000.

Inquiry Bureau

Dampness Under Roof Tiles

QUESTION.—My 20-year-old semi-detached house is situated in a rural area where for long periods every winter the heavy clay soil becomes waterlogged. The house, though small, is soundly constructed, its walls being of 9 in. solid brick. Signs of dampness in the roof have been apparent for a considerable time but recently I discovered the tongued and grooved boarding to be completely saturated. It should be noted that the roofing tiles are laid direct on to the boarding without felt. My main concern now is the possibility of dry rot. Can you explain the cause of the dampness and suggest a cure?

F. P. K.

ANSWER.—From the information given there would appear to be little doubt that it is the roof covering that is at fault. It is obvious that the condition of the roof timbers is such that rot will quickly set in and can only result in a rapid spread. While it is not usual for roofs only twenty years old to give such trouble, it is possible particularly with certain types of clay tiles. Since it is stated that a neighbouring house with similar roof covering has recently been re-tiled. it does confirm the belief that the tiles themselves are at fault.

Assuming the roof to be covered with plain tiles, there are two possible causes of failure: (1) that the clay tiles were incorrectly burnt and over the years have become porous; (2) that excessive vegetable growth on the roof surface preventing air circulation or in extreme cases sealing the bottoms and subsequently allowing water to build up above the cap. If the latter is the case it would be possible to remove the vegetable growth by wire brushing, but the operation would have to be repeated at intervals according to rapidity of growth. The whole surface could be treated with a cement wash though the appearance would not be in keeping with surrounding property.

Where tiles have become porous. returning in fact to clay in its almost natural state. the whole or the affected tiles should be replaced. Should the whole of the roof be affected it would be advisable to underfelt the roof before tiling.

Should the roof be covered with the single lap type of tile, while again it could produce a most satisfactory roof covering, because the lap is comparatively small it is essential for these tiles to be undisturbed. Close inspection may indicate that this has happened and replacement in their correct alignment could effect a complete cure.

E. J. E.

TECHNICAL REVIEW

This Review of plant, equipment and materials—in most cases new or with new features—is intended to give brief details only of the products mentioned. Notices are based on data supplied by the manufacturers. Additional information and prices can be obtained either direct or by using the prepaid Readers' Service form which appears on page 188 of this issue. The form can be used for more than one inquiry.

1. Safety Devices

It is estimated that 200 to 300 people lose their lives in farm accidents every year, and thousands more are injured. With this in mind a tractor ANTI-REARING AND ROLLING DEVICE has recently been manufactured after two years of research and development. The main duty of the device is to prevent the complete overturning of a tractor, and increase its safety generally. It is designed at the factory to the specifications of the different makes of tractors, and comes into operation only when the vehicle is nearing the danger angle. It prevents overturning either backwards or sideways by cutting off the power, thereby stopping the machine immediately. If the tractor takes a very sharp turn at high speed or is running down too steep a slope, the device acts in the same manner. A warning signal of the tractor's plight has also been installed.
Universal Equipment Co. (Northolt) Ltd., Belvue Works, Green-la., Hounslow.

2. Paints

Acrylic EMULSION PAINTS, which were developed over seven years ago in America, are now being used in this country with good results. The emulsion is free from objectionable odour and the film, shortly after application, is odourless and chemically inert. The paint dries very quickly and normal surfaces can be recoated within 30 to 60 minutes. It can be employed both internally and externally. As it is porous, and allows the transmission of water vapour, the paint can be used in conditions of high humidity, such as in kitchens and bathrooms whilst externally it can be applied direct to absorbent and highly alkaline surfaces such as fresh stucco, cement and plaster, for the chemical resistance of the acrylic polymer excludes any attack by alkali in the paint film. The paint is easy to apply by either roller or brush.
Charles Lennig & Co. (G.B.) Ltd., 26-28 Bedford-row, London, WC1.

3. Plastics

One of the new developments that can be seen at the Ideal Home exhibition is the outside application of DECORATIVE LAMINATES along the front elevation of a block of flats. They have been used for the front spandrel at three levels and as a background to a long open veranda that bridges the two sections of the block on the upper floor. The advantage in using these laminates externally, besides permitting a wide choice of colour, is that they are hard wearing and easy to keep clean and maintain.
Formica Ltd., 84-86 Regent-st., London, W1.

4. Heating

Another new product to be seen at the Olympia exhibition is a domestic OIL-FIRED BOILER with a maximum output of 42,000 Btu/hr., suitable for the average house. It is fitted with a pressure-jet burner of a new and exclusive type which is very quiet in operation. The boiler is made of cast-iron and incorporates a number of new features including a self-regulating damper at the burner air inlet which deals with a wide range of draught conditions, ensures that there is no cooling of the stack gases, and obviates the need for a draught stabiliser at the flue outlet. The complete unit is enclosed in a distinctively-styled casing finished in hammer-green and is available in two forms.
Thomas Potterton Ltd., 61 Wandsworth High-st., London, SW18.

5. Miscellaneous

A MASKING TAPE, with an unusual stretching capacity, should prove useful where a certain amount of adaptability is needed, such as, for instance, the spray finishing of difficult contours. This high degree of stretch—it is said that a 60-yd. roll can be expanded to cover 80 yd., is due to the tough, finely crimped, crepe texture of the paper base. The adhesive strength is also good, about 1 lb. per sq. in. and the tape will withstand heat up to 175°F.
Metemicals (Cannon) Ltd., 60 Cheapside, London, EC2.

6. Windows

A new double hung, vertical SLIDING SASH WINDOW is operated by gear that is entirely concealed within extruded jamb and cill sections. Both sashes are operated independently by a single handle in the centre of the cill. The gear has been developed to lift weights of up to 150 lb. per sash and is capable of carrying the heavy weight of double glazing that is often specified for such buildings as hospitals.

The principle applied obviates the use of counter-balances requiring very heavy jambs and an additional feature is a new method of pressure glazing in neoprene channels which has been incorporated in the design.
Geared Sashes Ltd., Glass-wks., Chester-st., Birmingham, 6.

7. Technical Publication

One of the specialist activities on which George Wimpey & Co. Ltd., have been engaged for some years is pressure grouting, using a variety of materials. They have now published a booklet in which some of the contracts where this technique has been used are described. It is often applied to strengthen existing structures such, for example, as old bridges which have to cope with increased traffic. The method employed is to drill holes into the masonry and inject grout under pressure so that it fills up all the existing voids. Pressure grouting is often used to improve strata and it has made it possible to build heavy structures on land thought previously to be unsuitable owing to bad ground conditions or mining operations.

The book, which is well illustrated, can be obtained from the company at Hammersmith Grove, London, W6.

Hospital walls painted with acrylic emulsion paints still look fresh after 2 years

News in Brief

Commonwealth Training Week Poster

A COMPETITION for a career poster in connection with Commonwealth Technical Training Week, May 29-June 4, is announced by the North Western Educational Association for the Building Industry. Open to *bona fide* students of Colleges of Further Education within the Association's area, entries are invited for posters 30 in. by 22 in. that will draw the attention of secondary school leavers to the possibilities of the building and allied construction industries as a career. Details from Mr. W. R. Wilson, Riversdale Technical College, Liverpool 19, to whom entries must be submitted by April 15.

Employment in Building

DURING JANUARY the number in civil employment is estimated to have fallen by about 29,000 to 23,682,000. The number employed in the construction industries was 1,544,000, an estimated decrease of 4,000 since the end of December, 1960. The number in employment during the same period in 1960 was 1,506,000.

The Late Mr. B. L. Watson

THE DEATH OCCURRED at his home at Streatham on February 27 of Mr. Benjamin L. Watson, joint managing director and vice-chairman of Teleflex Products Ltd., of Basildon. He was 63.

'Guide to Incentives'

THE Amalgamated Union of Building Trade Workers has issued a 'Guide to Incentives,' which is available, price 3s. 6d. (members, 1s.), from the Union at Crescent-lane, South Side, Clapham Common, London, SW4.

Price Reduction

BLUNDELL, SPENCE & CO. LTD. announce reductions in the trade price of two of their leading products. As from March 1 both Pammel gloss finish and Blundell's undercoat will cost 54s. a gallon. Old prices were 57s. and 54s. 6d. respectively.

Trade and Technical Literature

IT SHOULD BE NOTED that the last day for the submission of entries in the Manufacturers' Trade and Technical Literature Competition, 1961, is April 15 at mid-day. Further information may be obtained from the Director, the Building Centre, Store-street, London, WC1.

The Late Mr. E. Llyn Raworth

THE DEATH occurred on February 18 of Mr. E. Llyn Raworth, chairman and joint managing director of McCall & Co. (Sheffield) Ltd. He was a founder director of the company in 1922, becoming its chairman in 1941 and for nearly 40 years he devoted his energies to the development of the business.

Britain Slow to Accept New Ideas?

IN DECEMBER 1959, in 'The Builder' report of the Building Exhibition at Olympia, mention was made of the 'Pierson' sliding, sashless window which was being exhibited in the UK for the first time. Production commenced in March, 1960. We now learn that of 10 dwelling units on current display at the Ideal Home Exhibition Village, five are fully equipped with 'Pierson' sliding sashless windows, as also are the Air Force Single Men's quarters. And the British are said to be slow to accept new products and ideas!

Green for Danger

SHEPPEY (KENT) RURAL COUNCIL, who objected to Mr. Robert Morris, a builder, completing the tiling of the roof of his bungalow with 500 green tiles when the remaining 13,500 tiles were red, has given him four months within which to have them changed. Mr. Morris had told the Council he had been unable to obtain enough red tiles to complete the job, so had substituted green ones as a temporary measure.

Lack of Competition by Tender

A SERIOUS LACK of competition in tendering for new schemes, resulting in considerably increased prices, is reported by Hampshire county education committee. 'This situation has arisen because, at the present time, the building industry is considerably overloaded,' the committee declares. Although similar problems are being experienced by other authorities, they are very marked in Hampshire where rapid building development is taking place. For the two major building programmes 1960-61 and 1961-62, the council has authorised a total expenditure of £3,213,000.

Car Parking Standards

STANDARDS for the provision of car parking space have been formulated by Berkshire County Council. These have been incorporated in a booklet for use as a guide to developers and their professional advisors. Copies may be obtained from the Clerk of the Council, Shire Hall, Reading, Berkshire.

Electrical Engineers' Exhibition

Preview at Earls Court

LIGHTING FITTINGS, electrical appliances, wiring accessories and heating systems, among other things, will be featured at the Electrical Engineers' Exhibition to be held at Earls Court from March 21-25. Included in the new products on show for the first time is an automatic level-crossing gate exhibited by the BRITISH TRANSPORT COMMISSION. The barrier is operated through track relays and electrical power is supplied by batteries. Eight seconds before the train arrives at the crossing an electric two-tone gong, mounted on the barrier and audible from 300 yards, is sounded as the boom is lowered to stop on-coming traffic. The system has been built by ROTAX LTD.

Another interesting exhibit, this time from the clock industry, can be seen on the stand of THE SYNCHRONOME CO. LTD. They have a calendar clock from which the time, month, date and day of the week can be read at one glance. Months of unequal length and leap years apparently present no difficulty.

A Ceiling Switch

Of the more conventional displays, FALK STADELMANN AND CO. LTD. have their 'Cordone' ceiling switch on view. This is of 13-amp. capacity, completely insulated, and with no visible fixing screws. There is ample storage space in the base for cable and the switch operates at any angle up to 90° from the vertical. CHILTON ELECTRIC PRODUCTS LTD. have an improved type of double-pole earth-leakage circuit breaker with a maximum current rating of 100 amps. which has been specially designed for industrial and domestic use whilst GEC are showing for the first time an 11 Kv. switch-fuse tee-off unit. The operation for any fuse causes the tee-off switch to trip. Bushings are built in the unit so that cable testing can be carried out and the fuses, being air-insulated, can be used externally and replaced even in rain. On another stand the same company have a two-room space heater. The unit is installed in a partition wall and heating can be controlled by an adjustable thermostat. Air is drawn in through grilles near the ceiling and warm air is expelled through vents at the base of the unit. Adjustable vanes enable air to be directed into either or both rooms.

Industrial Infra-Red Heaters

Industrial infra-red heaters are a feature of the E. K. COLE stand. They allow the use of either one, two or three element-reflector assemblies with a common spine. SOFONO are also adding three new models to their existing range of infra-red heaters to be shown. PHILIPS ELECTRICAL

BROUGHTON MOOR

LIGHT
SEA GREEN
OLIVE GREEN
AND BLUE

SLATE

for Facings, Foundation Stones, Paving and Flooring, Steps, Cills, Shop Fronts, Surrounds, Pilasters, Fireplaces and all architectural work.

Send for technical pamphlets:
1. Floorings. 2. Facings.
3. Coping. 4. Cills.
5. Riven Faced Slabs.

The BROUGHTON MOOR GREEN SLATE QUARRIES Ltd.
CONISTON · LANCASHIRE
Telephone: Coniston 225/6 Telegrams: Gana, Coniston

LTD. are emphasising their double-coated fluorescent lamps, whilst amongst their range of wiring accessories MIDLAND ELECTRIC MANUFACTURING CO. have some interesting multiple socket outlets for bedside and fireside.

ALCAN INDUSTRIES LTD. are exhibiting 'Solidal' cable, which uses aluminium as a conductor and pvc as an insulator. Copper-clad laminates, and several examples of printed circuits made from them can be seen on the stand of FORMICA LTD. A new range of laminates with a greatly increased resistance to solder will be in the display.

A feature of GREENWOOD AIRVAC CONDUITS' stand will be a combined demonstration layout of their underfloor duct system and the standardised 'Flushfyt' floor duct system. These are used for communication systems and electrical services.

Personal Column

MR. GRAHAME MARTIN-TURNER has been appointed a director of Flexpipe Limited, a company within The Bowater Organisation, and will be responsible for both home and export sales.

CIBA (A.R.L.) LTD. have made the following changes in their sales organisation: MR. D. A. LEITCH, formerly Scottish Area Manager, is appointed Southern Area Manager, MR. L. W. TAYLOR becomes Scottish Area Manager, and MR. J. M. TURNER becomes Midlands Area Manager. MR. S. HOPWOOD continues as Northern Area Manager, and MR. G. GRANT as North Midlands Area Manager.

MR. M. A. F. NEWTON, aged 37, has been appointed managing director of Cape Building Products Ltd. of Cowley Bridge Works, Uxbridge, the building material subsidiary of The Cape Asbestos Company Ltd. He has been on the Board of Cape Building Products since its formation in 1956.

MR. R. A. RICHARDSON has been appointed a director of OSMA Plastics Ltd.

Ford & Walton Ltd. of Walton House, Warton-rd., London, E15, has appointed MR. L. J. BRADSHAW to its Board of Directors.

MR. A. F. THOMAS has been appointed by the Delta Metal Co., Ltd., as an assistant managing director.

MR. A. R. ZAMBRA has been appointed technical director in charge of the roofing and structural insulation department of Rudders & Paynes Ltd., Birmingham.

Philips Electrical announce that MR. E. J. ELLETT has joined their South East Region's sales force as an ELA representative and will thus be concerned with the selling of sound equipment installations.

To assist in future expansion plans, Thomas Potterton Ltd. have appointed MR. J. F. GEORGE as marketing manager.

MR. EDGAR STOTT, export sales manager, Turner Brothers Asbestos Co. Ltd., is to retire on March 31 after 42 years' service with the company. The new export sales manager will be MR. J. C. T. FELL, who, until recently, was the export sales manager of Ferodo Ltd., Chapel-en-le-Frith—a sister company of Turners in the Turner & Newall Organisation. Mr. Fell takes up his new appointment officially on April 1.

A number of new appointments in the Villiers and JAP service departments of The Villiers Engineering Co. Ltd., of Wolverhampton are announced. MR. F. R. CARTER remains as group service controller with the responsibility for co-ordinating the Villiers service department at Wolverhampton and the JAP service department at Southgate and for the effective control of the Group's officially-appointed service depots. Villiers service manager at Wolverhampton, MR. J. P. FLOWER, now also becomes responsible for the engine repair department. MR. G. W. GREEN will assist. Changes at the JAP service department at Southgate involve the appointment of MR. A. C. BUTFIELD as JAP service manager, with MR. D. EVANS as repairs manager.

Publishing House, Holborn Circus

(*Continued from p. 493*)

Quantity surveyors: Langdon & Every; special design consultant: Hulme Chadwick; services consultant: J. Clifford Byles; acoustic consultant: H. Adelmann.

sub-contractors & suppliers:

Plastering and screeds: J. B. Abbott & Co. (Plasterers) Ltd.; *fire alarm installation:* Associated Fire Alarms Ltd.; *glazing:* F. Bowman Glassworks Ltd.; *acoustic ceilings:* Burgess Products Co. Ltd.; *floor and wall tiling:* Carter & Co. (London) Ltd.; *interior decoration to canteen:* Frank W. Clifford Ltd.; *cork insulating work:* Cork Insulation & Asbestos Co. Ltd.; *metal window cladding:* The Crittall Manufacturing Co. Ltd.; *painting:* C. & T. Painters Ltd.; *terrazzo partitions and finishings:* Diespeker & Co. Ltd.; *asphalt work:* Durable Asphalte Co. Ltd.; *interior decoration to directors' accommodation:* David Esdaile & Co. Ltd.; *casing to ducts:* The Expanded Metal Co. Ltd.; *marble work:* Fenning & Co. Ltd.; *stainless steel dado:* Flexo Plywood Industries Ltd.; *lightning conductors:* W. J. Furse & Co. Ltd.; *handrailing and balustrading:* J. Starkie Gardner Ltd.; *mechanical engineering:* G. N. Haden & Sons Ltd.; *interior decoration to entrance hall:* Harris & Sheldon Ltd.; *drain laying:* Edward H. Jackson Ltd.; *interior decoration to lift lobbies, etc.:* Kings (B. D. J.) Ltd.; *lettering:* The Lettering Centre; *pavement lights:* Luxfer Ltd.; *expansion jointing:* Mann Reddington; *roller shutters, f.r. doors & sprinkler installation:* Mather & Platt Ltd.; *runway beams, guardrails, etc.:* Moreland Hayne & Co. Ltd.; *passenger & goods lifts:* Otis Elevator Co. Ltd.; *window cleaning gear:* Palmers Travelling Cradles and Scaffolding Co. Ltd.; *sliding doors:* Potter Rax Ltd.; *Tyloglaze finish, Betonac floor finish:* Quickset Water Sealers Ltd.; *electrical installations:* Rashleigh Phipps & Co. Ltd.; *copper covered felt cladding:* Ruberoid Co. Ltd.; *scaffolding:* Scaffolding (G.B.) Ltd.; *floor centres:* Acrow (Engineers) Ltd.; *acoustic insulation:* H. Adelmann; *concrete beams:* Allens (Concrete) Ltd.; *asbestos insulation board and gutters:* Asbestos Engineering Products Ltd.; *sanitary fittings:* John Bolding & Sons Ltd.; *glass bricks:* British Challenge Glazing Co. Ltd.; *fabric reinforcement:* B.R.C. Co. Ltd.; *bricks:* The Cape Building Products Ltd., R. Caxton Ltd., Erith & Co. Ltd., R. Y. Ames Ltd., Henry J. Greenham (1929) Ltd., Sussex & Dorking United Brick Co. Ltd.; *vermiculite:* Dupre Vermiculite (Exfoliators) Ltd.; *expanded metal:* Expanded Metal Co. Ltd.; *ready mixed concrete:* Fairlop Ready Mixed Concrete Co. Ltd.; *joinery, artificial stone, bricks:* W. & C. French Ltd.; *steel rod reinforcement:* George Gadd & Co. Ltd., G.K.N. Reinforcement Ltd., John de Boutillier Ltd., Park Gate Iron & Steel Co. Ltd., Whitehead Iron & Steel Co. Ltd.; *Aristocrat finish doors:* F. Hills & Sons Ltd.; *strong room doors:* Hobbs, Hart & Co.; *softwood, plywood, etc.:* J. Lenanton & Son Ltd.; *r. conc. pipes:* Norcon Ltd.; *rubber flexible doors:* Parker, Winder & Achurch Ltd.; *power operated doors:* Potter Rax Ltd.; *ties, loops, cones:* The Rawlplug Co. Ltd.; *cast iron grid tiles:* L. Richmond Ltd.; *sanitary fittings:* Shanks & Co. Ltd.; *partition blocks:* Thermolite Ltd.; *Portland cement:* The Tunnel Portland Cement Co. Ltd.; *ironmongery:* Yannedis & Co. Ltd.; *excavation work & supply of sand & shingle:* Willment Bros. Ltd.; *storage racking, etc.:* Acrow (Engineers) Ltd.; *acoustic filters, anti-vibratory mountings:* H. Adelmann; *emergency lighting and check batteries:* Alkaline Batteries Ltd.; *reel lowerators, etc.:* Argus Engineering Co. Ltd.; *switchgear & motors:* Associated Electrical Industries Ltd.; *fire detector equipment:* Associated Fire Alarms Ltd.; *diesel alternator set:* Austinlite Ltd.; *string tying machines:* Automatic Strapping Machines Ltd.; *weighing machines:* W. & T. Avery Ltd.; *stereo-metal heating equipment:* Barlow-Whitney Ltd.; *removal contractors:* Beck & Pollitzer Ltd.; *ink storage tanks:* J. Bellamy Ltd.; *special furniture and fittings:* Alan Best (Exhibitions) Ltd.; *woven wire conveyor curves:* The British Wedge Wire Co. Ltd.; *newspaper conveyors and switchgear:* Brookhirst Igranic Ltd.; *machinery guards, walkways, etc.:* E. A. Brown & Co. (Ironworkers) Ltd.; *steel tables:* John Brown (Greenwich) Ltd.; *removal contractors:* Bullens Organisation Ltd.; *air compressors:* A. Bullows & Sons Ltd.; *mechanised publishing machinery:* B.U. Supplies & Machinery Co. Ltd.; *power balers:* Camco (Machinery) Ltd.; *composing room equipment:* Cefmor Brehmer Ltd.; *teleprinter equipment:* Creed & Co. Ltd.; *compressed air and ink piping:* R. Crittall & Co. Ltd.; *multicore cables:* Enfield-Standard Power Cables Ltd.; *light fittings and cable duct:* Falk Stadelmann & Co. Ltd.; *lifting tackle:* Felco Hoists Ltd.; *light fittings and aluminium sheathed cable:* The General Electric Co. Ltd.; *telephone installation:* G.P.O.; *television and floodlights:* Giles (Electrical Engineers) Ltd.; *newspaper printing presses:* Goss Printing Press Co. Ltd.; *transformers:* Hackbridge & Hewittic Electric Co. Ltd.; *water cooling systems:* G. N. Haden & Sons Ltd.; *Marleyflex floor tiles:* Haskel Robertson Ltd.; *furniture:* Heals (Contracts) Ltd., Druce & Co. Ltd., Hille of London Ltd., Esavian Ltd.; *newspaper printing presses:* R. Hoe & Crabtree Ltd.; *photographic equipment:* Ilford Ltd.; *tea boilers:* Jackson Boilers Ltd.; *ultrasonic cleaning equipment:* Kerry's (Ultrasonics) Ltd.; *fire detector equipment:* The Walter Kidde Co. Ltd.; *kitchen equipment:* Kitchen Machines Ltd.; *kitchen utensils:* Kitchen Supplies Ltd.; *darkroom equipment:* Kodak Ltd.; *plastic notices, diagrams, etc.:* Lamigraph Ltd.; *pneumatic document conveyors:* Lamson Engineering Co. Ltd.; foundry *machinery:* Light Sons & Williams (Machinery) Ltd.; *bulgomme floor covering:* Lino Tile Co. Ltd.; *composing and plate casting machines:* Linotype & Machinery Ltd.; *process equipment:* Sidney R. Littlejohn & Co. Ltd.; *h.t. switchgear:* London Electricity Board; *metal partitions:* Luxfer Ltd.; *closed circuit television:* Marconi's Wireless Telegraph Co. Ltd.; *steel floors, etc.:* Moreland Hayne & Co. Ltd.; *lifting tackle:* Herbert Morris Ltd.; *electrical switchgear:* The National Electrical Supplies Co. Ltd.; *electronic engraving machines:* K. S. Paul Ltd.; *rubber matting:* John Perring Ltd.; *public address and Musak:* Planned Music Ltd.; *general electrical supplies & installation:* Rashleigh Phipps & Co. Ltd.; *h.t. switchgear and press drives:* A. Reyrolle & Co. Ltd.; *building components, ironmongery:* L. Richmond Ltd.; *Korkoid thermoplastic tiles:* Rowen & Boden Ltd.; *steel partitions and furniture:* Sankey Sheldon Ltd.; *reel conveyors and newspaper elevators:* S.A.P. Ltd.; *proof presses:* Soldans Ltd.; *reel conveyors and publishing conveyors:* Sovex Ltd.; *telephone installation:* Standard Telephones & Cables Ltd.; *metal dust and fume extract plant:* Sturtevant Engineering Co. Ltd.; *master and slave clock system:* The Synchronome Co. Ltd.; *carpentry and joinery:* T. & A. B. (Builders) Ltd.; *reel lifting tackle, late news rollers, news ink:* Usher-Walker Ltd.; *press rollers:* Victoria Rub. Co. Ltd.; *electrical distribution equipment:* William White (Switchgear) Ltd.; *reelstands and pasters:* Witton-James Ltd.; *venetian blinds:* J. Wood & Sons Ltd.; *lifting tackle:* The Yale & Towne Manufacturing Co.; *veneering panels & hardwoods:* Wm. Mallinson & Sons, Ltd.

Company News

BAKELITE LTD. recommend the payment of a final dividend of 11¼ per cent (less tax) in respect of the year ended December 31, 1960.

BOWMAKER LTD. recommend the payment of a final dividend of 13 per cent (less tax) for the year ended October 31, 1960.

DUSSEK BROS. & CO. LTD. recommend the payment of a final dividend on the ordinary shares of the company of 15 per cent (less tax) in respect of the year ended December 31, 1960.

OVERSEAS BUILDING

From Our Own Correspondents

AUSTRALIA (SOUTH).—The contract for the erection of the £16m. oil refinery at Halletts Cove has been let to the American firm of M. W. Kellogg & Co. It is expected that much South Australian materials and labour will be used.

AUSTRALIA (TASMANIA).—The University of Tasmania is to build a big radio-telescope at Sorell, near Hobart.

AUSTRALIA (VICTORIA AND NSW).—The Shell Co. of Australia has current expansion projects in Victoria and New South Wales which will cost £A23m. The company is to extend its refinery at the Port of Geelong, in Victoria, to manufacture lubricating oils. The new plant, to cost £A6m., will have a capacity of 80,000 tons. It is expected to begin production in 1964. The company is also building a catalytic cracking plant near Sydney at a cost of £A17m.

CANADA (BRITISH COLUMBIA).—Tenders are to be called this month for the construction of a six-storey wing at the Royal Jubilee Hospital, Victoria. Approximate cost is $2.8m. . . . Ramada Inn Roadside Hotels Ltd. announce the construction of a $1.5m. hotel at Vancouver. . . . The Dominion Glass Co. is to construct a $4m. plant at Burnaby. . . . The Deeks-McBride Co. Ltd. is to embark on a $2m. construction extension programme at Richmond, Burnaby and Vancouver. . . A $1.7m. hospital is to be built for the Sisters of Charity at Fort St. John. . . A $2.9m. school construction programme has been announced for Port Coquitlam. . . . A $2.7m. wing is to be constructed to the Langley Memorial Hospital. . . . A $5m. construction programme has been announced by Christ College, Langley.

DOMINICAN REPUBLIC.—A school costing $165,000 is to be built at Puerto Plata. . . . A new hospital for the state health service is to be built in San Pedro de Macoris. Costing $47,500, it will have 22 beds and be closely linked to the nearby sugar industry.

ECUADOR.—The Municipality of Guayaquil has called tenders (to be received by March 27 at the latest) for the supply of adduction piping and a drinking water distribution network at Naranjal, a district in the municipality.

KUWAIT.—A new 362-bed hospital, designed by Mr. J. R. Harris, FRIBA, is to be built on a coastal site directly fronting on to the beach.

NEW ZEALAND.—The Auckland City Council has decided to accept conditionally tenders totalling £1,658,762 15s. 2d. for the erection of a proposed 240 ft. city administration building in Grey's-avenue. This figure includes a main construction tender of £299,149 12s. 6d. submitted by James Wallace Pty. Ltd., of Sydney, Australia, and sub-contracts amounting to £1,359,613 2s. 8d.

PHILIPPINES.—A contract valued at almost $1¼m. for a new flour mill in the Philippines has been placed with Thomas Robinson & Son Ltd., of Rochdale. The new mill is for the Central Philippine Milling Corporation and will be sited at Iligan near to Cebu City.

SIERRA LEONE.—A £2m. contract for a 900 ft. long earth dam in the Guma Valley has been awarded to Taylor Woodrow (Sierra Leone) Ltd. by the Crown Agents for Overseas Governments. Howard Humphreys and Sons are the consulting engineers. The dam will hold 4,400m. gal. to augment the water supply of Freetown and also to supply a possible future hydro-electric station. At its highest point it will rise 190 ft. above the river bed. The site is a narrow steep-sided gorge in the mountainous forest reserve area, near the villages of Hamilton and Sussex, and about 16 miles by road south of Freetown.

SOUTH AFRICA.—The Minister of Water Affairs stated in the House of Assembly in Cape Town recently that the Government was contemplating the building of a dam on the Umgeni river, a few miles upstream from Howick, Natal. He said the dam would have a capacity of 92,000 morgen ft. and the eventual cost would be R4,050,000 (£2,025,000).

SWITZERLAND.—A new hotel at Geneva is planned by Intercontinental Hotels Corporation, at a cost of about £3,214,300. It will provide about 400 rooms with ancillary accommodation in a building of 16 storeys. Work is to be completed in mid-summer, 1963, at about the same time as the new tunnel through Mont Blanc, at Chamonix.

USSR.—Two contracts valued at more than £2m. have been awarded to a company formed by Fisons and Constructors John Brown for the design, supply, and commissioning of two chemical plants for Russia. The contracts were signed on March 10 at the Leipzig Fair.

Pakistan Price Controls Lifted

THE PRESIDENTIAL CABINET OF PAKISTAN decided recently to remove price and distribution control on sanitary and water supply fittings, tiles, cement, iron and steel, imported timber, and building hardware.

Hospital Architect in Rhodesia

MR. D. J. PETTY, MBE, MA, ARIBA, senior architect of the Ministry of Health's hospital research and development group, has gone to Rhodesia to advise the Federal Department of Health and the Ministry of Works on their plans for the new multi-racial teaching hospital at Salisbury.

Trade Literature for Jamaica

MR. F. J. GORNALL, recently appointed head of the building department of the new College of Arts, Science and Technology at Kingston, Jamaica, has informed 'The Builder' of his intention to build up a library of trade catalogues, brochures and, where possible, samples of materials. A great number of imported building units are used in Jamaica and manufacturers would find that it would be in their interest to forward trade literature, etc., to the college. Such information should be addressed to Mr. Gornall, at the College of Arts, Science and Technology, Hope-road, Kingston 6, Jamaica.

SCOTTISH BUILDER

Orkney Towns Development Plan

A SURVEY and development for Kirkwall and Stromness in Orkney prepared by Mr. and Mrs. R. Moira, Edinburgh planning consultants, in association with Mr. M. Sergent, have been placed before the Orkney Planning Committee in Kirkwall for transmission to the Secretary of State for Scotland.

Since the preparation of the plans for the two burghs, surveys of both the North and South Isles of Orkney have been completed and work on the Orkney mainland survey is proceeding. For Kirkwall and Stromness an illustrated survey report was produced. This reviews the past and present situation in both towns in detail and inquires into their structure, population, industry, communications, community facilities, public utilities, and housing.

The written statement includes proposals to be carried out in both towns during the various stages of a 20-year plan. It is the amended version taking into account the views of the local organisations concerned that is now being submitted to the Secretary of State.

Delay in Planning Applications

THERE HAS been a complaint in Glasgow regarding delays in approval of routine planning permission applications. The Royal Faculty of Procurators in Glasgow has suggested that consideration of non-contentious applications might be speeded by better organisation of routines. Glasgow Council has agreed to consider the proposals.

New Buildings

ANGUS CC.—New further education centre at Keptie-rd., Arbroath. Floor area 8,900 sq. ft. Several works contract. Applications to County A, County-bldgs., Forfar.

EDINBURGH CORPN.—New day nursery and clinic at Gilmerton. All trades in one undertaking basis. Usual trades. Applications to City A, City-chbrs., Edinburgh.

GLASGOW CORPN.—New youth centre at Fara-st., Cadder. Applications to Architectural & Planning Dept., 20 Trongate, Glasgow, C1.

MOTHERWELL & WISHAW BURGH.—Wishaw swimming baths. Two phases: (a) Excavations, in situ concrete floors, tanks and roots and supply and erection of precast concrete columns and steel roof trusses, and (b) general contract covering remainder of work. Indicate which phase is of interest, or both. Applications to Burgh A, Motherwell-hse., Motherwell.

STIRLING ROYAL BURGH. — New children's home at Coxithill/Torbrex. Applications to Burgh A & Planning Officer, Old Burgh-bldgs., 65 King-st., Stirling.

THE BUILDER CONSTRUCTION NEWS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list, see previous issues. Those preceded by the symbol (A) are advertised in this number. The latest date for the receipt of tenders or applications appears above each paragraph. The symbol (R) preceding each entry indicates that applications must be received by this date.

BUILDING

MARCH 21

(AR) BLACKBURN CBC.—Proposed extensions to Shadsworth sec. mod. sch. Boro' E. Dep. £2 2s.

(AR) BRISTOL CITY C.—Fixed price tenders for alterations and additions to Redland Training College. City A.

MARCH 23

(AR) NORTHUMBERLAND CC.—Erection of a child welfare centre and nurses' flats at Longbenton. County A.

(AR) SURREY CC.—Adaptations at Pyrcroft House, Chertsey. County A.

MARCH 30

(A) MARCH UDC.—Improvements to 16 houses at Wisbech-rd. E&S. Dep. £1 1s.

(AR) PORTSMOUTH CITY C.—Modernisation of pre-war flats at Beresford-hse. and Emanuel-hse. Director of Housing. Dep. £1.

MARCH 31

(AR) LEWES BC.—Construction of roads and sewers. Boro' S.

(A) SHEFFIELD REGIONAL HOSPITAL BD.—Development (1st phase) of Scunthorpe & District War Memorial Hospital, Lincs. Regional A, Fulwood-hse., Old Fulwood-rd., Sheffield 10.

(AR) SHEFFIELD REGIONAL HOSPITAL BD.—Erection of new boiler house and plant at Leicester Royal Infirmary. E. F. Wilson, Fulwood-hse., Old Fulwood-rd., Sheffield 10.

APRIL 6

(A) WHITSTABLE UDC.—Erection of a civil defence vehicle garage. E&S.

APRIL 7

(AR) CANNOCK UDC.—Fixed price tenders for 518 dwellings, garages and shops, at Longford-rd. (two sections). H. Wilcox, Architect to Council, High Green, Cannock. Dep. £2 2s. Tenders by May 8.

(A) KIDDERMINSTER BC.—Extension to public library. Boro' E&S.

APRIL 10

(A) MID-WALES POLICE AUTH.—Erection of two police houses at Lower Canal-rd., Newton. Clerk to Auth.

(A) NORTHFLEET UDC.—Erection of 24 houses at Painters Ash estate, Northfleet. E&S. Dep. £2 2s.

APRIL 11

(A) BOOTLE CBC.—Erection of two blocks of three shops with five maisonettes over, two four-storey blocks of twelve maisonettes and 27 garages, at Park-la., Netherton. Boro' S. Dep. £2 2s.

APRIL 13

(A) OLDHAM CBC.—Fixed price tenders for veterans' pavilion at Werneth Park. Cameron & Middleton, quantity surveyors, 21 Mumps, Oldham. Dep. £2 2s.

SERVICES, PAINTING, MATERIALS, ETC.

MARCH 20

(AR) CHESTER CITY C.—Heating and hot water installation at Hoole sec. mod. sch. City E&S. Tenders by April 11.

MARCH 30

(AR) SOUTHERN ELECTRICITY BOARD.—Fixed price tenders for engineering workshops and garages accommodation at West Hendford, Yeovil, Som. Sub-Area E., 1 Priory-rd., Bournemouth. Dep. £5 5s.

APRIL 3

(A) MIDDLETON BC.—Painting of 303 dwellings on various sites (five sections). Boro' A.

APRIL 10

(A) GUNNERSBURY PARK JOINT COM.—Conversion to oil burners to farm dressing rooms and greenhouses. E to Com.

APRIL 12

(A) BOURNEMOUTH CBC.—Fixed price tenders for a new canopy and general modernisation to the Main-st. entrance of pavilion at Westover-rd. Boro' A. Dep. £1 1s.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

MARCH 27

POCKLINGTON RDC.—Construction of approx. 1,800yd. of 6in., 9in. and 12in. dia. concrete sewers, with manholes, 6,620yd. of 4in. spun-iron rising mains; two pumping stations, 260yd. of reinforced concrete stormwater culvert, and sewage treatment works in Pocklington, East Riding of Yorkshire. J. H. Haiste & Ptnrs., constg. engrs., Belmont House, 20 Wood-la., Headingley, Leeds 6. Dep. £3 3s.

MARCH 28

GLOSSOP B.C.—Surface dressing of various roads in the Borough, amounting to approx. 20,300 sq. yd. of tar spraying. Boro' S.

APRIL 5

ST. NEOTS RDC.—Fixed price tenders for the laying of approx. 3,200yd. of concrete and stoneware sewers of 9in. and 6in. dia., the laying of 3,300yd. of asbestos-cement, pumping mains of 6in. and 4in. dia., including a crossing of the River Great Ouse, the construction of an ejector station and a pumping station, alterations to existing pumping station, laying of house drainage connections, and reinstatement of road surfaces, for Little Paxton and Southoe Sewerage. Pick, Everard, Keay and Gimson, constg. engrs., 6 Millstone-la., Leicester. Dep. £5 5s.

GENERAL BUILDING WORK (LONDON)

BERMONDSEY. — School Rebuilding. —

YOUR TIMBER MERCHANT *will tell you about*

ROYAL

RMML

The LCC's Ed. Sub-Com. have approved plans submitted by Mr. Eric Lyons for the rebuilding of two war-damaged primary schools, Albion School, Bermondsey, and Friars School, Southwark. The cost of the first will be £86,070 and of the second £76,490. Each will accommodate 280 juniors and infants.

DEPTFORD. — Planning Application. — Stock, Page & Stock have forwarded a town planning application to the LCC for permission to erect offices and flats at New Cross-rd./Nettleton-rd.

DEPTFORD & FINSBURY.—Slum Clearance.—The LCC Housing Com. has submitted proposals for the acquisition, by compulsory purchase if necessary, of sites amounting to nearly 16 acres in Deptford and Finsbury. The total cost, including that of clearance and partial redevelopment, is estimated at £525,000. About 551 families will be displaced.

GREENWICH.—Planning Application.—LCC has received from Mr. Julian Sofaer a town planning application for the erection of flats and garages at Hyde Vale nursery.

HAMMERSMITH.—Planning Application.—The erection of 22 shop units, two departmental stores, two PH's and an 18-storey office block at King-st./Blacks rd./Hammersmith Bridge-rd./Angel-walk/Queen Caroline-st., is the subject of a town planning application recently forwarded to the LCC by Shingler & Risden, architects.

HAMPSTEAD.—Planning Applications.—The LCC has received the following town planning applications: New swimming baths and library—part of civic centre scheme—at Eton-ave. / Winchester-rd. / Adelaide-rd. / Avenue-rd. (Basil Spence & Ptnrs.); erection of shops, flats and petrol station, etc., at West Hampstead Station site, West End-la. (Ivor Shaw).

HORNSEY.—Central Library.—MBC are to erect a central library at rear of Town Hall shortly. Designed in the Boro' A's Dept., the building will cost something like £225,000. W. V. Zinn & Ptnrs. have been appointed structural engrs., and Selby & Sanders are quantity surveyors.

HOUNSLOW.—Shopping Centre.—Work is to begin soon on a new shopping centre with a frontage of about an eighth of a mile to High-st., Hounslow, which will provide 34 shop units and an office block with 35,000 square feet of floor space. The site area is about 70,000 sq. ft. The site is close to Hounslow East railway station. It is hoped that erection will begin in May and that some of the shops will be ready by Christmas. To a design by John Macalpine, the scheme is expected to cost over £1m., and is sponsored by Gula Investments, a property development company.

Car parking for 65 cars is to be provided at first-floor level at the rear of the building, and the site of a proposed municipal car park is also just behind the building. Completion of the whole scheme is due by September, 1962.

KENSINGTON.—Planning Applications.—The LCC has received the following town planning applications: Erection of service tower for BEA at Cromwell-rd./McLeods-mews/Lexham-gdns. (Sir John Burnet, Tait & Ptnrs.); erection of shops, offices, flats and garage showrooms, etc., at Gloucester Road Station (R. Ward & Ptnrs.).

LAMBETH.—Planning Application.—The LCC has received a town planning application from Sanderson & Ptnrs. for the erection of a restaurant, with living accommodation, at 'San Marco,' York-rd.

LONDON CC.—Education Building Programme.—The LCC Education Com. has reported that the Minister of Education has included in the primary and secondary schools' building programme for 1962-63 only about half the programme submitted by the Council—14 projects valued at £2,251,024 out of 29 projects valued at £4,087,250.

ST. PANCRAS.—School Enlargement.—The LCC's Ed. Sub-Com. propose to acquire for £102,000 a site needed for the enlargement and remodelling of Acland Burghley School, St. Pancras. The site is in Ingestre-rd., Dartmouth Park Hill and Burghley-rd. and includes 14 houses, six shops and a warehouse. About 120 persons will be displaced and powers of compulsory purchase may be necessary. The enlargement and remodelling

of the school to form a school for 1,320 boys and girls is one of the projects included in the 1962-63 building programme.

ST. PANCRAS.—Planning Application.—Messrs. Chitton have forwarded a town planning application to the LCC for the development of University College Hospital Medical School at Gower-st./Chenies-mews.

WANDSWORTH.—Acquisition.—The LCC Housing Com. propose to acquire, by compulsory purchase, if necessary, a site of about 0.92 acre near Westbury-st., Wandsworth, comprising industrial premises, eight two-storey terrace houses, eight shops used partly or wholly for residential purposes. About 15 families will be displaced. The estimated cost of acquisition, clearance and partial redevelopment is £67,350. This acquisition will enable a more comprehensive scheme to be carried out in an area of about ten acres, most of which is already owned by the LCC. The total number of dwellings to be erected will be increased from 172 to 226.

WESTMINSTER.—Planning Applications.—The LCC has received the following town planning applications: Erection of a 14-storey hotel building at Jermyn-st./Duke-st. (H. H. Ford); second stage of development of Royal College of Art on land fronting Kensington Gore/Jay-mews (H. T. Cadbury Brown); office building with flats at Constitutional Club site, Northumberland-ave (R. Fielding); detailed plans for 170-ft. hotel building at Park-la. (N. Green).

(PROVINCIAL)

BARROW.—TC has approved plans submitted by the John Laing Construction Company for the erection of 56 semi-detached houses, 11 detached houses, 14 semi-detached bungalows, and 81 garages and stores on land at Dalton-la. . . . TC has also approved plans for a new office block to be built by James Fisher and Sons, the shipbrokers, at Newland-st.

BASINGSTOKE.—BC is seeking planning permission to extend parking accommodation in central car park by constructing a system of multi-storey parking. . . . BC is commencing immediate negotiations with local planning authority regarding town's need for additional land for industrial purposes.

BELFAST.—Houston & Beaumont, 30 College-gdns., Belfast, are the architects for the erection of a new branch bank at Shaftesbury-sq. for the Ulster Bank Ltd., Waring-st. Est. £150,000.

BERKS.—CC propose: New buildings at Wokingham-rd. Police Station, Reading, £41,000 estimated; new buildings at Downshire-way Police Station, Bracknell, £35,000 est.; approved completion of Mrs. Bland's School at Burghfield, £37,508 est.

BERWICK.—Jus-Rol Ltd. are to extend their factory on the Tweedside trading estate. The scheme is being considered by the planning authorities.

BIRKENHEAD. — Following for BC: Extensions to Rock Ferry High sch; alterations to Park High sch. for boys; community/youth centre at Woodchurch; infants' dept. at Christchurch CoE prim. sch. and Arrowe Hill county prim. sch.

BIRKENHEAD.—BC propose erection of 54 flats, 67 maisonettes and three houses at Wood-st. area.

BIRMINGHAM.—Outline planning consent has been given for the erection of a new shopping centre in Perry Barr, Birmingham. A five-acre site adjoining the new flyover now under construction at the junction of the main Walsall-rd. and the Birmingham Ring-rd. has been bought by Central Land Investments. The scheme, to a design by J. Brian Cooper and James A. Farquhar, architects, includes an 11-storey hexagonal office block surmounting a restaurant and single storey shops—making 13 storeys in all—and bounded by a traffic-free precinct with two-storey shops and showrooms on the perimeter. It provides for a total of 59 shops. The cost of the scheme, with acquisition of land and the construction, is estimated at about £1m.

BISHOP AUCKLAND.—William Leech Ltd., builders and contractors, St. James-st., Newcastle-on-Tyne, are seeking the approval of the planning authorities for the erection of houses for keyworkers employed by Westool Ltd., engineers, Bishop Auckland. The planning authorities, it is understood, are willing to approve the development of a site of 21 acres for this purpose.

BLACKBURN.—BC propose erection of ambulance station at Addison-st.

BLACKPOOL.—Lewis's Ltd., department store proprietors, are to build a new store on the site at present occupied by the Palace buildings, on the Promenade, Blackpool.

BLACKPOOL.—F. Peeney & Sons Ltd. propose erection of shops and flats at Promenade/Withnell-rd.

BLAYDON (Co. Durham).—UDC is considering the provision of an open-air swimming pool at Rowlands Gill.

BOLDON (Co. Durham).—UDC is recommending Durham CC to construct a branch library and clinic at Western-terrace, East Boldon.

BOLTON.—Park Lane Development Co. (Ringley) Ltd. are to build houses on 46 acres of land adjoining the Hough Fold estate at Harwood.

BOOTLE.—BC propose converting Imperial cinema into public hall.

BOURNEMOUTH. — TC has received application from Mr. G. Lowe for erection of a six-storey block of flats on site of Tuckton Tea Gardens, Tuckton end of Wick-la. . . . BC is to inform MoE that it has no objection to the building of the first CoE sec. sch. in Bournemouth. Est. £200,000.

BRIGHOUSE.—West Riding CC propose erection of old people's home at Field-la., Rastrick. . . . Alfred Robinson (Properties) Ltd. propose erection of five pairs of houses at Granny Hall-la., 29 pairs houses and 16 pairs of bungalows off Slead-ave. . . . Cleveland Petroleum Co. Ltd. propose erection of petrol filling station at Bramston-st., Rastrick. . . . H. & D. Leslie Ltd. propose residential development at Tanhouse-la., Hipperholme. . . . A. Heaton (Valves) Ltd. propose extensions to Livingstone valve-wks., at Bradford-rd. . . . Reliance Garage (Brighouse) Ltd. propose workshop/office extension.

BRIGHTON.—The Planning Committee has approved a 9-storey development scheme for 125 Queen's-rd. and 5-6 Windsor-st. by National Deposit Friendly Society.

BURNLEY.—BC propose erection of 100 further dwellings during 1961. . . . Marks & Spencer Ltd. propose extension to store at Curzon-st.

BURY.—BC propose erection of new training centre/hostel near Castlecroft day nursery.

CAMBERLEY.—R. Lyon (Estates) Ltd., Walton-on-Thames, propose single-storey factory and office block at Doman-rd., Yorktown. . . . Extensions at Yorktown industrial estate for Industrial Machine and Equipment (Brimpex) Ltd. proposed. . . . Rubber Linatex Ltd. propose extensions at Stanhope-rd.

CARLISLE.—Ministry approval received for erection of St. Bede's prim. sch. for RC Auth. Est. £50,000.

CARNFORTH.—CoE Auth. propose erection of new sch. during 1962-63.

CHERTSEY.—UDC propose 12-storey blocks of flats at Addlestone.

CHESHAM.—Erection of a block of shops with flats over for John English, Golding & Co. Ltd. proposed. Architect is A. E. Mellett, 145 Wemborough-rd., Stanmore, Middlesex.

CHESHIRE.—Diocese of Shrewsbury propose erection of 22 new RC schools in various Cheshire towns.

CHES.—Following for CC: Ambulance depot at Northwich, £32,955 est.; junior and adult training centre at Northwich, £76,347 est.; clinic centre at Sale, £22,912 est.

CHESTER.—TC propose erection of new bus station between Delamere-st. and George-st. . . . TC to consider erection of new central library on site of Hunter-st. sch.

CHESTER.—Approval in principle given by TC to central re-development scheme submitted by Ian Hart, London.

CHESTERFIELD.—BC propose erection of 750 dwellings at Loundsley Green, and 26 grouped garages at Dunston Hall estate.

CHESTER-LE-STREET.—RDC is considering the provision of new Council Offices. Derek Crouch Ltd., contractors, are to extend their offices at Station-rd., Birtley, Chester-le-Street.

COLWYN BAY.—BC are to sell two acres land adjoining Bron y Nant Isolation Hospital for private development.

CONSETT.—A site has been selected in the village of Dipton for the erection of a crematorium for a Joint Com. representing the local authorities of Whickham, Blaydon, Stanley and Consett. The approval of the planning authorities has still to be obtained.

DARWEN.—RC Auth. proposes erection of St. Thomas Aquinas sec. sch. Est. £105,750.

DEWSBURY.—BC propose extensions to Thornhill sec. sch. . . . George Bretherick (Leeds) Ltd. propose the erection of 35 houses off Frank-la.

DIDCOT. — The Nuffield Orthopaedic Group propose extensions to Didcot Hospital.

DUKINFIELD.—BC propose residential development at Yew Tree-la.

EARLEY (Reading).—CoE Auth. to proceed with stage 2 of new day sch. at Church-rd.

EASTBOURNE.—Planning permission has been granted for a seven-storey block of 38 self-contained luxury flats, including three pent houses, on a site adjoining Compton-pl., former home of the Dukes of Devonshire. Developers are York and London Property Management Ltd.

ENNISKILLEN (Co. Fermanagh).—Ministry have approved the redevelopment of the area known as Riverview, which includes 172 houses and 18 other properties, for BC.

FARNBOROUGH.—UDC has approved the erection of 257 dwellings at Prospect estate for C. G. Robertson Ltd.

FARNHAM.—Church Commissioners propose restoration and repairs to Farnham

Contracts Placed

We are glad to receive from architects and quantity surveyors for publication details of contracts placed to the value of £20,000 or over. Such information should reach the Editor as soon as possible after the contract is signed. Names of the architect and other consultants associated should be given.

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Castle. Plans by own architects' department, 1 Millbank, London, SW1. . . . UDC has approved plans for 20 houses at Farnborough-rd., Heath End, for Mr. P. J. May; 3-storey block of 6 flats, 6 garages and 3 shops with flats over at junction of Weybourne-rd. and Upper Weybourne-la. for Mrs. M. Knight.

FLEETWOOD.—RC Auth. propose erection of Cardinal Allen sec. sch. Est. £164,422.

GUILDFORD.—Plans submitted to RDC: Block of 16 flats and garages and block of 12 flats and garages at 'Chequers,' Wharf-rd., Ash Vale, for Mr. G. W. Berry; 20 dwellings and garages at Gorselands for Group Captain Barwood, 'Gorselands,' Prospect-rd., Ash Vale; eight maisonettes and garages at 'Inverness,' Vale-rd., Ash Vale, for Col. & Mrs. Harris; outline application for housing development at Vale-hse., Prospect-rd., Ash Vale, for Patco Properties Ltd.; ten houses at The Quadrant, Ash Vale, for Mr. J. Lee; development of land with the curtilage of Ashbourne Hotel, Ash Hill-rd., for Mrs. A. M. Bridge; development of land at Vine-hse., Ash Hill-rd., Ash, for Mr. E. C. Dubut.

HARROGATE.—Alfred Neale & Co. propose erection of flats and maisonettes, at Park-pl.

HARTLEY WINTNEY.—RDC propose 50 dwellings in 1961, including 20 at Odiham.

HAVANT (Hants.). — Havant Planning Auth. has approved lay-out of 35-acre site at Brockhampton for Vinyl Products Ltd., for office block and laboratories fronting proposed Havant by-pass with factory buildings set out with own road network. It is proposed to start building factory with floor area of 330,000 sq. ft. this month (March).

HEYWOOD.—RC Auth. propose erection of prim. sch. on overspill site. . . . Manchester Regional Hospital Bd. propose erection of new Maternity Hospital on approved site.

HOUGHTON-LE-SPRING. — Plans are being considered for the construction of a supermarket in Newbottle-st. Architects are Boyers and Partners 88 Grays Inn-rd., London, WC1.

HUDDERSFIELD.—BC propose erection of new buildings at St. James's grammar sch.

HUNGERFORD.—Work on the erection of the new Hungerford sec. sch. is expected to start by March 31.

KEIGHLEY.—BC propose extensions to bus station on site of Hippodrome.

KINGSTON-UPON-THAMES. — BC propose new swimming bath near existing. Est. £20,000.

LANCS.—Following for EC: New central library at Kirkby; branch library at Lees & Mossley during 1961-62; day special sch. at Haslingden, during 1962-63; infant/jun. county sch. at Higher Fold estate, Leigh; school clinic/child welfare centre at Walverden Bridge Mill, Nelson; CoE infant/jun. sch. at Newton-with-Clifton.

LIVERPOOL.—Lancs. EC propose major extensions at I. M. Marsh College of Physical Education. Est. £406,750.

MANCHESTER.—Ferranti Ltd. propose erection of apprentice training sch. at Thomas-st., West Gorton. . . . Following for TC: Site investigation surveys for multi-storey flats at Collyhurst/Miles Platting/Harpurhey/Butler-st./Sale; housing development at Alders-rd./Green-rd., Benchill; 340 dwellings/160 garages at Bredbury Green; new South Hulme sec. sch./caretaker's house at Derry-st., Hulme; hostel for mentally disordered at Brougham-st., West Gorton; aged persons' home at Lincombe-rd., Woodhouse Park; day centre/club at Daisey Bank-rd., Victoria Park; aged persons' home at Harpurhey re-development area. . . . Regional Hospital Bd. propose second phase of Wythenshawe Hospital and maternity block and operating theatre at Withington Hospital.

MORPETH.—J. Campbell Smith Ltd., builders, Alnwick, are to erect houses at the corner of Lynemouth and Cresswell-rd., Ellington, and plans have been approved.

NELSON.—Following for BC: Erection of 50 dwellings during 1961; old peoples' community centre at Woodlands estate.

NEWBURY.—Extensions and adaptations to Shaw House sec. mod. sch. at Newbury, est. £191,000, is proposed.

NEWCASTLE (Co. Down).—UDC have approved layout plans for 98 dwellings at Castlewellan-rd. for Northern Ireland Housing Trust, 12 Hope-st., Belfast.

NEWCASTLE-UNDER-LYME. — BC propose erection of 360 dwellings during 1961.

NORTHUMBERLAND. — William Leech Ltd., builders and contractors, St. James-st., Newcastle-on-Tyne, are seeking permission from the planning authorities to erect single persons' flats at Blyth, Bedlington and Seaton Valley. It is understood that similar dwellings are proposed on other estates being developed in the North-East by the company.

NOTTINGHAM.—The Senate, Nottingham University, propose the erection of two Halls of Residence. Est. £750,000.

OAKENGATES.—UDC propose erection of 57 houses/43 bungalows on various areas.

OLDHAM.—Manchester Regional Hospital Bd. propose erection of twin operating theatres at Oldham General Hospital. Est. £133,519.

POOLE.—Wessex Regional Hospital Bd. are giving urgent priority to acquisition of site in Poole neighbourhood for a 500-bed hospital for mentally sub-normal people.

PRUDHOE (Northumberland).—The MoH has approved sketch plans of the fourth stage of a development scheme at Prudhoe and Monkton Hospital for Newcastle Regional Hospital Bd. Est. £250,000.

PURLEY.—Surrey CC propose erection of prim. sch. at Long-la.

READING.—British Road Services Ltd., 205 High Holborn, London, EC1, propose extensions at warehouse at 660 Oxford-rd. Plans by own staff. . . . James T. Cook & Son Ltd., 74 London-rd., Reading, propose three blocks of maisonettes, flats and garages at Park Side-rd. . . . J. West Ltd., Calcot-wks., Bath-rd., propose 31 houses and garages off Gordon-pl. . . . Gillette Industries Ltd. propose extensions at 452 Basingstoke-rd. Architects, Monro & Ptnr., 32 Clarendon-rd., Watford. . . . Davis Estates Ltd. propose re-development of 4-8 Crown-st. Architects, Lewis Solomon, Kaye & Ptnrs., Thavies Inn-hse., Holborn Circus, London, EC1. . . . Mr. & Mrs. C. J. A. Boorman, Hillside-rd., Thorpe St. Andrew, Norwich, propose two blocks of flats at 40 Redlands-rd.

RUNCORN.— ICI Ltd. propose erection of new research laboratory at Runcorn Heath.

SALOP.—CC propose erection of aged persons' home at Oswestry.

SHEFFIELD.—The Eastern Region of British Railways are about to embark on a comprehensive freight modernisation scheme covering the Sheffield area. The £9 million 'master plan' for a new marshalling yard and diesel depot at Tinsley, and a freight concentration depot at Grimesthorpe, will provide Sheffield with one of the most modern groups of freight installations in the country. Work is expected to begin in the late spring and be completed by the end of 1964.

SHINFIELD (Berks.).—County Planning Auth. has granted permit to RDC to develop whole site at School Green, Shinfield, for residential purposes.

WILMSLOW.—CoE Auth. propose erection of replacement sch. at Altrincham-rd. . . . Tesco Stores propose erection of supermarket at Grove-st. after demolition of existing property.

WILTSHIRE.—CC is to ask MoE to approve new junior and infants' sch. at Bulford for 440 pupils, est. £75,768, as addition to 1961-62 major building programme.

WINSFORD.—UDC propose erection of factories on industrial estate for Plastic Coating Ltd., Guildford, and Tithebarn Products Ltd., Southport.

WORSLEY.—UDC propose erection of 68 dwellings at Little Hulton and 40 dwellings at Ellenbrook-rd., Boothstown.

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(PA) Denotes *provisionally accepted*.
(RA) Denotes *recommended for acceptance*.
(AM) Denotes *accepted subject to modification*.
(GD) Denotes *accepted subject to approval by appropriate Government Department*.

ABINGDON.—Erection of 35 flats at the Vineyard for BC. (A) Baldwin Bros. (Builders) Ltd., 28 High-st., Wroughton, Swindon, £70,250.

ARMAGH.—Construction of an 18,000 sq. ft. extension to factory at Armagh for Ministry of Commerce. (A) P. Carvill & Sons Ltd., Queen-st., Warrenpoint, Co. Down.

ATHERTON.—New petrol service station for Regent Oil Co. Ltd. (A) Contractors (Manchester) Ltd., Reddish, nr. Stockport.

AYLESBURY.—Erection of 104 dwellings and 56 garages at the Oakfield estate for BC. (A) Direct labour, £152,169.

BARNES.—Firm price tenders for: (a) 12 flats and 12 garages at Chertsey Court, and (b) four garages at Lambert-ave. for BC. Boro' E&S is W. R. Shepherd. Quantities by Messrs. Pritchard, Williams & Hunt. (A) Poolman (Bldrs.) Ltd., Sutherland-hse., Edgware-rd., NW9, £27,105.

BASILDON.—Erection of 16 three-bedroom houses at Devonshire-rd./Buller-rd., Laindon, Essex, for UDC. E&S is S. A. Wadsworth. Quantities by Low & Low, Chelmsford. (A) Seivad Ltd., 12-16 Southend-rd., South Woodford, £29,971.

BASILDON.—Construction of a 6m. gal. reservoir for Southend Waterworks Co. (A) The Cementation Group, £126,000.

BELFAST.—36 flats at Fortwilliam-par. for City C. (A) William Polly, Quoile-rd., Downpatrick, £55,997.

BERWICK.—Erection of ward block at Berwick Infirmary for Newcastle Regional Hospital Bd. Bd.'s Chief A is P. H. Knighton. (A) J. Best (Contractors) Ltd., Warriston-hse., Edinburgh 4, £59,904.

BISHOP AUCKLAND.—Erection of x-ray dept. at General Hospital for Newcastle Regional Hospital Bd. (A) Wright & Kellett Ltd., £41,438.

BOWDON.—New nurses' training centre at St. Anne's Hospital for Manchester Regional Hospital Bd. (A) J. E. Lesser & Sons Ltd., Hounslow.

BRANDON (Co. Durham).—Erection of 14 bungalows with roads, sewers and lighting for UDC. (A) Direct labour, £23,934. Proposed Deerness Valley and Browney Colliery sewerage scheme for UDC. Consulting engineers are Waterhouse & Rounthwaite, 165 Westmorland-rd., Newcastle-on-Tyne. (A) Thyssen Shaft Sinking Co. Ltd., New Malden, Surrey, £250,000.

CARDIFF.—Building and engineering work in blast furnace area of Guest, Keen and Nettlefolds' Iron & Steel works. (A) Tarmac Civil Engineering Ltd., £190,000.

CARLISLE.—Erection of a new factory for Nestle Co. Ltd. (A) J. Twiname Ltd., £250,000.

CHINGFORD.—Erection of 16 flatlets for BC. (A) P. G. Evans & Son Ltd., 361 Higham Hill-rd., E17, £23,658.

COOKSTOWN (Co. Tyrone).—29 houses at Blackhill for RDC. (A) Anthony Nugent, Pomeroy, £47,071.

COVENTRY.—Construction of 14 shops and 68 flats at Bell Green/Wood End/Alderman's Green for City C. (GD) G. Wimpey & Co. Ltd., £189,400.

DURHAM.—Erection of maternity and child welfare centre, school clinic, and branch library at Newton Aycliffe for the CC. (A) W. Wilson, Coulson-st., Spennymoor, Co. Durham, £32,331.—Erection of fire station (stage 2) at Peterlee for CC. (A) R. Matthews & Co. Ltd., Nile-st., Sunderland, £30,993.

EASTBOURNE. — Erection of process building and ancillary works for Birds Eye Foods Ltd. Morgan & Carn, architects. (A) Y. J. Lovell (Sussex) Ltd., £81,834.

EPPING & ONGAR.—Erection of 10 'Homeville' dwellings at Fyfield for RDC. (A) H. J. Smith (Ongar) Ltd.

GLOUCESTERSHIRE. — Sub-contract covering construction of the sub-structure and foundations of the Severn Suspension Bridge for MoT. (A) J. Howard & Co. Ltd., £1¾m. (approx.).

GUILDFORD.—New depot and vehicle repair workshops for BC. (A) R. Holford Ltd., Walnut Tree-cl., Guildford, £70,950.

HARTLEPOOL.—Erection of outpatients' dept., and administrative offices. etc., at Hartlepools Hospital for Newcastle-on-Tyne Hospital Bd. (A) G. H. Plemper Ltd., St. Hilda's-wks., Old Chester-rd., Sunderland. £24,713.

HEMEL HEMPSTEAD.—Erection of factory, offices and canteen at Eaton-rd./Maxted-rd. for Honywell Controls Ltd. Clive Pascall, Peter Watson & Associates, London, W1, architects. (A) Leslie & Co. Ltd., London, £120,000.

HEREFORD.—Erection of 12 bungalows with garages at Hillside for City C. City A is Norman Roberts. (A) Rees & Williams, 'Drosffin,' Colonel-rd., Betws, Ammanford, South Wales, £22,347.

HIGH WYCOMBE.—Erection of 68 dwellings and 60 garages at Hicks Farm estate for BC. (A) G. A. Griffiths & Son, Verney-ave., High Wycombe, £140,900.

KEIGHLEY.—Following for BC: 90 'Unity' flats at Braithwaite estate. (A) West & Sons (Leeds) Ltd., £136,114. Erection of 12-storey block of 192 flats at Broom-st. (A) G. Wimpey & Co. Ltd., £480,032. Erection of 74 dwellings on various sites. (A) Ernest Turner Ltd., Keighley, £80,910.

KENDAL.—Extension to factory at Gallowbarrow for Somervel Bros. Ltd. (A) G. & J. Seddon Ltd., Little Hulton, Walkden.

KESWICK.—Erection of 18 houses for UDC. (A) John Twiname Ltd., Brigham, Cumberland, 14 houses at Latrigg-cl., £26,000, and I. & R. Hodgson, Stanger-st., Keswick, four houses at Southey-st., Keswick, £7,990.

LANCS.—Following for EC: Phase 1 of county sch. at St. Leonard's-rd., Lytham St. Annes. (A) R. Parker & Son (Catterall), £38,254.—Completion of jun./infants' sch. at Oakfield County, Widnes. (A) W. Neill & Son (St. Helens) Ltd., £20,790.

LEEDS. — Three-storey printing works extension for Alf Cooke Ltd. J. H. Napper & Ptnrs., architects. (A) Holland & Hannen and Cubitts (Scotland) Ltd., £80,000.

LIVERPOOL.—Erection of 183 dwellings/71 garages at Longmoor-la. for TC. (A) J. McGeoch & Sons Ltd., Kirkby, £402,300.

LONDON CC.—Development of sites of Mount Clare and Downshire House, Wandsworth, for use of Garnett Training College. (A) W. J. Marston & Son Ltd., Fulham, £56,843 (restoration and adaptation of Mount Clare and Devonshire House); and Rush & Tompkins Ltd., Kent, £421,688 (erection of new buildings and other works).

LONDON CC.—Construction of eight terrace houses on the Broxburn-dr. site and four terrace houses and eight garages on the Shannon-way site, Aveley estate, Essex.

R. J. Truscott Ltd.	£29,140
F. R. Hipperson & Son Ltd. ...	28,873
A. E. Symes Ltd.	28,383
Douglas Grant & Ptnrs. Ltd. ...	27,243
(A) Gray, Conoley & Co. Ltd. ...	25,950
Architect's comparable estimate is	£24,768.

LONDON CC.—Construction of an area office, works depot, 17 garages and two motor-cycle stores at Ashburton estate, Wandsworth.

T. R. Roberts (Builders) Ltd. ...	£35,483
Sims & Russell Ltd.	32,886
E. J. Lacy & Co. Ltd.	31,904
Wm. J. Jerram Ltd.	31,512
M. Howard (Mitcham) Ltd.	31,256
Poolman (Builders) Ltd	31,116
H. T. Oliver & Sons Ltd.	30,057
(A) G. Ward (Ealing) Ltd.	28,935
Architect's comparable estimate is	£29,059.

(GD) LONDON (Admiralty).—Particulars of contracts over £4,000 in value: *Northern Ireland:* Re-covering roofs; Neuchatel Asphalte (Contracting) Ltd., Belfast. *Hampshire:* Re-roofing; Carter-Horseley (Engineers) Ltd., Crawley. Recruiting office; G. E. Prince & Sons Ltd., Southampton. Boiler house; A. E. Porter & Sons Ltd., Portsmouth. Painting; Chas. B. Dickenson Ltd., London, SW1. Extension to shop; R. J. Winnicott Ltd., Portsmouth *Dorset:* Re-roofing tanks; Whessoe Ltd., Darlington. *Hampshire:* Repairs to jetties; A. E. Farr Ltd., Westbury. *Dorset:* Heating installation; Mumford, Bailey & Preston Ltd., Bournemouth. *Hampshire:* Extension to shop; Dibben Structural Engineers, Southampton. Steelwork; Blight & White Ltd., Plymouth. *Berkshire:* Painting and storage of steelwork; J. J. Hamilton & Sons Ltd., Headington, Oxon. *Dorset:* Renovation of huts; Rawlings (Builders) Ltd., Poole. *Hampshire:* Electrical installation; D. Alldridge & Sons Ltd., Southampton. *Dorset:* Heating; Edward Deane & Beal Ltd., London, EC4.

(GD) LONDON (Air Ministry).—Contracts to the value of £4,000 or over for week ended March 10: *Building work:* Biggin Hill, Kent; Woodcock Marshall & Co. Ltd., 2 Westbourne Grove Mews, London, W11. Locking, Weston-super-Mare, Somerset; Sir Lindsay Parkinson & Co. Ltd., 6 Lambeth-rd., SE1. Cranwell, Lincs.; B. Pumfrey Ltd., Wintern Works, Lea-rd., Gainsborough, Lincs. *Artificers' work:* Cranwell (Lincs.) etc.; Bosworth Wakeford & Steawell Ltd., Lawford-rd., Rugby, Warwicks. Cosford, Staffs; Seddon (Stoke) Ltd., 55 Duke-st., Fenton, Stoke-on-Trent, Staffs. Norton, Sheffield; R. Green & Son (Chapel-en-le-Frith) Ltd.; Market-st., Chapel-en-le-Frith, Cheshire. Alconbury, Hunts; Rattee & Kett Ltd., Station-rd., Cambridge. Manston (Kent), ec.; C. Jenner & Son Ltd., 5/9 Bouverie-rd. west, Folkestone, Kent. *Central heating medium pressure, hot water installations & external mains etc.:* Cranwell, Lincs; G. N. Haden & Sons Ltd., PO Box No. 14, 7-12 Tavistock-sq., London, WC2. *Manufacture, supply, delivery & erection and commissioning of* 11 *unit type sub-stations:* Fylingdales Moor, Yorkshire; The English Electric Co. Ltd., Liverpool Works, East Lancashire-rd., Liverpool. *Preparation of lands:* Air Ministry Directorate General of Works, Headquarters, No. 5 Works Area, Shippon, Abingdon, Berks. (Groups 1-5.) Including Upper Heyford, Brize Norton, Halton, Welford, and Greenham Common, Berkshire; G. O. & W. L. Watts (Grazeley) Contracts Ltd., Calcot Works, Calcot, Reading, Berks.

(GD) LONDON (British Railways).—New London Midland contracts: Construction of Club building for Staff Association, Wellingborough; R. C. Tann (Builders) Ltd., Finedon, Wellingborough. Reconstruction of Bridge No. 35 on the Welwyn/Dunstable branch; Thos. Fletcher & Co. Ltd., Mansfield, Notts. Piling for Bridge No. 84 (Bushbury/Stafford line) and station buildings and yardmaster's office in connection with reconstruction of Stafford station; Braithwaite Foundations & Construction Ltd., Regent-st., London, SW1. Yardmaster's office and amenities; George A. Poole Ltd., Newcastle, Staffs.

(GD) LONDON (British Railways).—Contracts placed by the Eastern Region: Repairs to reinforced concrete superstructure of overbridge No. 267A between Grimsby Docks and New Clee; Clark & Fenn Ltd., 16 Old Town, Clapham, London, SW4. Repairs to reinforced concrete superstructures of overbridges Nos. 40A and 42 and underline bridge No. 43 between Althorpe and Appleby; Clark & Fenn Ltd., 16 Old Town, Clapham, London, SW4. Provision of building to accommodate Traffic Accounting staff at Cambridge; Bovis Ltd., 1 Stanhope Gate, London, W1. Provision of building to accommodate Traffic Accounting staff at Lincoln; Bovis Ltd., 1 Stanhope Gate, London, W1.

(GD) LONDON (MoW).—Contracts placed for week ended March 4: *Aberdeenshire:* Extension of laboratory at Department of Scientific and Industrial Research, Torry, Aberdeen; W. J. Anderson Ltd., Balmoral-rd., Aberdeen. *Ayrshire:* Erection of telephone exchange, Langlands Brae, Kilmarnock; T. Findlay & Son Ltd., Horwood-pl., Mauchline. Erection of post office and sorting office, Orchard-st., West Kilbride; Nairn Bros. (Builders) Ltd., 55 Main-st., Kilbirnie. *Essex:* Construction of new store building and ancillary works at Shell Fish Research Station, Burnham-on-Crouch; F. Hodson & Son Ltd., Orchard-st., Chelmsford. *Hampshire:* Adaptations (stage II) of Post Office engineering depot, Petersfield; S. Salter (Portsmouth) Ltd., 227/229 Goldsmith-ave., Portsmouth. *Kent:* Preservation work at Cobham Hall; G. E. Wallis & Sons Ltd., Stuart-rd., Gravesend. *Lanarkshire:* Erection of administrative block at Post Office telephone engineering centre, Dr., Drakemore, Castlemilk, Glasgow; A. M. McDougall & Co. Ltd., 24 Davaar-st., Glasgow, SE. Erection of telephone exchange, Crowlin-cres., Cranhill, Glasgow; Findlay & McGeechan, 1097 Tollcross-rd., Glasgow, E2. *London:* Alterations to canteen at Cleland House, Page-st., SW1; Mr. C. J. Fisk, 49 Lincoln-rd., Forest Gate E7. *Yorkshire:* Erection of telephone engineering centre, Cherry Row, Leeds; F. Shepherd & Son Ltd., Blue Bridge-la., York.

(GD) LONDON (War Dept.).—Contracts placed for week end Feb. 24: *Berkshire:* Boiler work at Windsor; Stitson White & Co. Ltd. London, W1. *Essex:* Bridge repairs at Shoeburyness; Carter-Horsley (Engineers) Ltd., Crawley. *Kent:* Building at Chatham,

W. H. Holden, Rainham Kent. *Lancashire:* Miscellaneous at Halton; Nicholson & Wright Ltd. Lancaster. *Yorkshire:* Building at Catterick Camp; C. Chapleo & Sons, Leyburn. Miscellaneous at Harrogate; G. W. Ledger, Harrogate

MANCHESTER.—Extensions to Quelrayn-wks., Waterloo-rd., for H. Marks Ltd. (A) G. & J. Seddon Ltd., Little Hulton, Walkden. Following for TC: Alterations to St. Joseph's-bldgs., Longsight, for Police Driving School. (A) Moston Brick & Building Co. Ltd. (amended tender).—Workshop block extension at Technical College, Openshaw. (A) Benjamin Smith.—New Central Technical College. (A) G. & J. Seddon Ltd., Little Hulton, Walkden (amended tender).

MIDDLESBROUGH.—Erection of department of physical medicine at Middlesbrough General Hospital for Newcastle Regional Hospital Bd. (A) Derek Crouch Ltd., Station-rd., Birtley, Co. Durham, £61,706 (in place of previous tender).

MORPETH.—Alterations and extensions to administration building at Northgate & District Hospital. Designed by Regional A's Dept. (P. H. Knighton). (A) R. Hush & Co. Ltd., £10,285.

NEWCASTLE-ON-TYNE. — Erection of old people's home on the Montagu Estate for City C. (A) G. L. Currie Ltd., Crescent-way south, Forest Hall, Newcastle-on-Tyne, £64,070.

NEWCASTLE-UNDER-LYME.—Stage I of students' union at Keele for University College of North Staffs. (A) C. Cornes & Son Ltd., Hanley, Staffs.

NORTHFLEET.—Erection of 26 flats at Burch-rd., Northfleet, for UDC. North Kent Construction Co., White Hart-rd., Orpington, £39,494. L. R. Obee Ltd., 12 Wrotham-rd., Gravesend, £36,650. (A) T. Rider & Son Ltd., 11 High-st., Chislehurst, £35,846.

PLYMOUTH.—Erection of Law Courts in the civic centre. H. J. W. Stirling, City A. (A) Richard Costain (Construction) Ltd., 111 Westminster Bridge-rd., London, SE1. £290,005.

ROYSTON.—Old peoples' community hall and Warden's house at Poplar-terr. for UDC. (A) T. Potter & Son, Barnsley.

SALFORD.—Extensions and rebuilding to soap works for Cussons, Sons & Co. Ltd. Mather & Nutter, architects. Whealing, Horton & Toms, quantity surveyors. (A) J. Gerrard & Sons Ltd., £69,000.

SOUTH SHIELDS.—Erection of X-ray dept. at Ingham Infirmary for South Shields District Hospital Management Com. Architects are S. W. Milburn & Ptnrs., 9 Esplanade, Sunderland. (A) Carruthers & Son, Heughter., South Shields, £29,976.

STOKE-ON-TRENT.—Following for EC: 1st phase of Holden-la. county sec. sch. (A) Elsby Bros. Ltd., Burslem, £172,568.—Extensions to jun. training centre at Fenton. (A) G. A. Poole Ltd., £46,430.

SWANSEA.—Extension to premises at 17 High-st. for Halford Cycle Co. Ltd. Henry A. Ellis & Son, Mardy-chbrs., 6 Wind-st., Swansea, architects. B. W. Ellis, 90 Mansel-st., Swansea, quantity surveyor. (A) Griffith Davies & Co. Ltd., Paxton-yd., Swansea.

WALTON-ON-THAMES.—Conversion of Metropolitan Convalescent Hospital as a geriatric hospital for Metropolitan Regional Hospital Bd. (A) W. & E. Simmons Ltd., Walton-on-Thames, £93,983.

WANTAGE. — Ambulance station at Eagles-cl. for Berks. CC. (A) H. J. Knapp & Sons Ltd., Stanford-in-the-Vale.

WIGAN.—Erection of two shops/flats at Marsh Green for BC. (A) Direct labour, £20,264.

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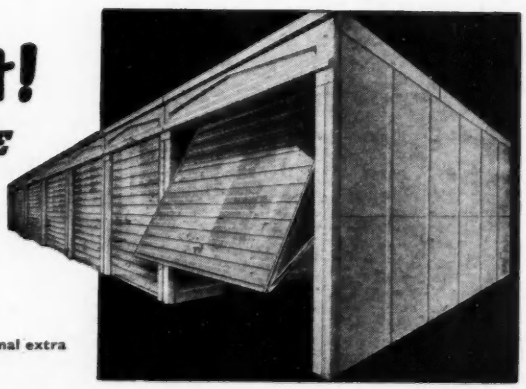

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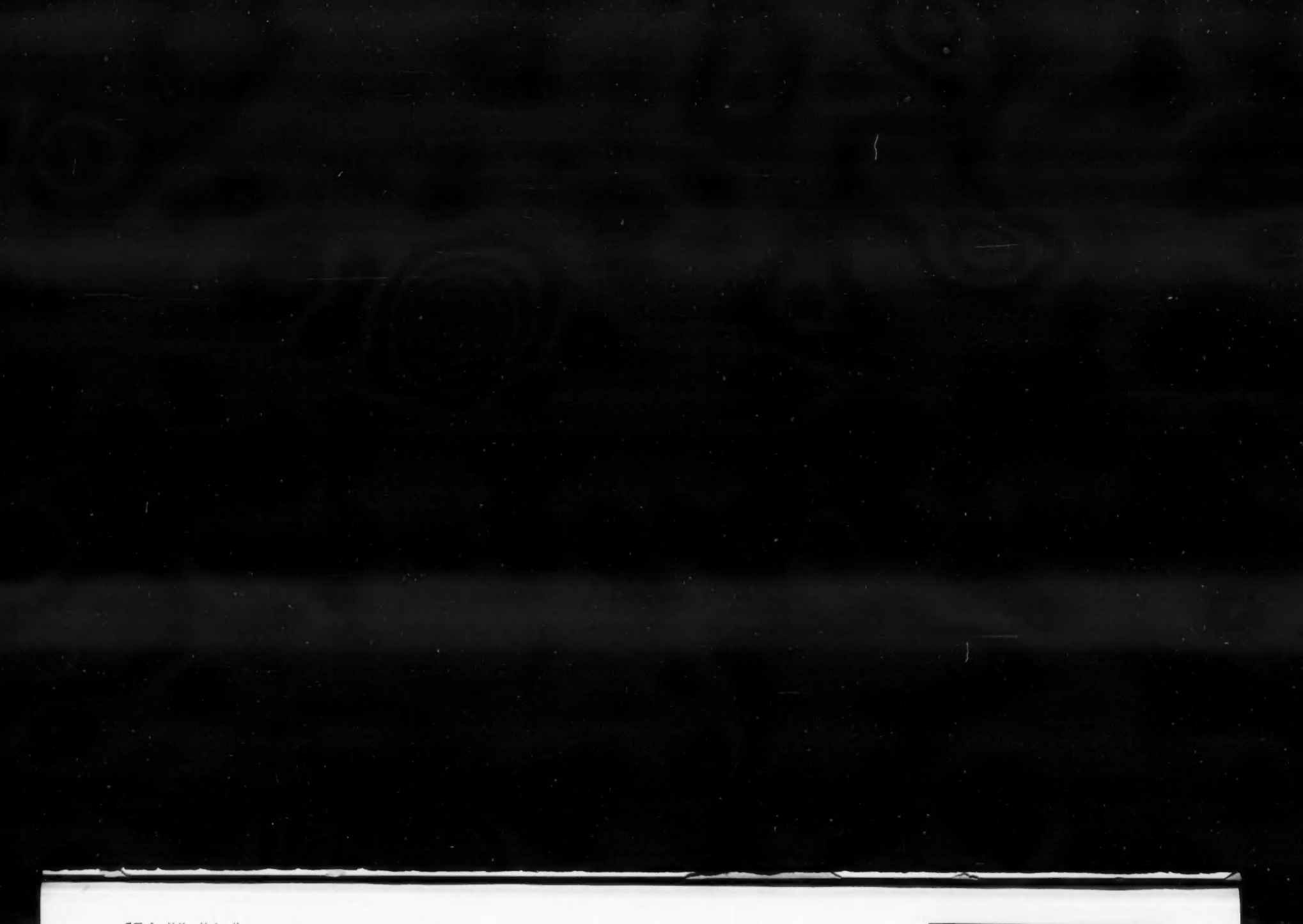
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